



**U.S. ARMY
ENVIRONMENTAL
CENTER**

Tooele Army Depot

**Revised Final Remedial Investigation
Addendum Report for
Operable Units 4, 8, and 9**

**Volume III
(Appendices I through J)**

PART II

February 1997

**Rust Environment and Infrastructure
Grand Junction, Colorado 81506**

**Prepared for
U.S. Army Environmental Center
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DISTRIBUTION STATEMENT A

**Approved for public release;
Distribution Unlimited**

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: ANIONS</i>							
IHJ	BR	BROMIDE	LT	8.83000	µg/g		
IHG	BR	BROMIDE	LT	8.83000	µg/g		
IHI	BR	BROMIDE	LT	8.83000	µg/g		
IHL	BR	BROMIDE	LT	8.83000	µg/g		
IHO	BR	BROMIDE	LT	8.83000	µg/g		
IHM	BR	BROMIDE	LT	8.83000	µg/g		
IHX	BR	BROMIDE	LT	8.83000	µg/g		
IHW	BR	BROMIDE	LT	8.83000	µg/g		
IHV	BR	BROMIDE	LT	50.00000	µg/l		
IHU	BR	BROMIDE	LT	8.83000	µg/g		
IHS	BR	BROMIDE	LT	50.00000	µg/l		
IHR	BR	BROMIDE		8.83000	µg/g		
IHQ	BR	BROMIDE		16.60000	µg/g		
IHP	BR	BROMIDE	LT	8.83000	µg/g		
IHK	BR	BROMIDE	LT	8.83000	µg/g		
IHH	BR	BROMIDE	LT	8.83000	µg/g		
IHF	BR	BROMIDE	LT	50.00000	µg/l		
IHD	BR	BROMIDE	LT	8.83000	µg/g		
IHJ	CL	CHLORIDE	LT	8.83000	µg/g		
IHF	CL	CHLORIDE	LT	39.60000	µg/g		
IHG	CL	CHLORIDE	LT	39.60000	µg/g		
IHD	CL	CHLORIDE	LT	39.60000	µg/g		
IHH	CL	CHLORIDE	LT	39.60000	µg/g		
IHK	CL	CHLORIDE	LT	273.00000	µg/l		
IHM	CL	CHLORIDE	LT	39.60000	µg/g		
IHP	CL	CHLORIDE	LT	39.60000	µg/g		
IHO	CL	CHLORIDE	LT	39.60000	µg/g		
IHX	CL	CHLORIDE	LT	39.60000	µg/g		
IHW	CL	CHLORIDE	LT	39.60000	µg/g		
IHV	CL	CHLORIDE	LT	273.00000	µg/l		
IHU	CL	CHLORIDE	LT	39.60000	µg/g		
IHS	CL	CHLORIDE	LT	273.00000	µg/l		
IHR	CL	CHLORIDE	LT	39.60000	µg/g		
IHQ	CL	CHLORIDE	GT	200.00000	µg/g		
IHL	CL	CHLORIDE	LT	39.60000	µg/g		
IHI	CL	CHLORIDE	LT	39.60000	µg/g		
IHJ	F	FLUORIDE	LT	39.60000	µg/g		
IHD	F	FLUORIDE	LT	19.20000	µg/g		
IHF	F	FLUORIDE	LT	19.20000	µg/g		
IHG	F	FLUORIDE	LT	19.20000	µg/g		
IHH	F	FLUORIDE	LT	19.20000	µg/g		
IHI	F	FLUORIDE	LT	71.00000	µg/l		
IHK	F	FLUORIDE	LT	19.20000	µg/g		
IHL	F	FLUORIDE	LT	19.20000	µg/g		
IHM	F	FLUORIDE	LT	19.20000	µg/g		
IHO	F	FLUORIDE	LT	19.20000	µg/g		
IHP	F	FLUORIDE	LT	19.20000	µg/g		
IHQ	F	FLUORIDE	LT	19.20000	µg/g		
IHR	F	FLUORIDE	LT	19.20000	µg/g		
IHS	F	FLUORIDE	LT	19.20000	µg/g		
IHU	F	FLUORIDE	LT	19.20000	µg/g		
IHV	F	FLUORIDE	LT	71.00000	µg/l		
			LT	19.20000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: ANIONS</i>							
IHW	F	FLUORIDE	LT	71.00000	µg/l		
IHX	F	FLUORIDE	LT	19.20000	µg/g		
IHJ	NO2	NITRITE	LT	3.16000	µg/g		
IHD	NO2	NITRITE	LT	3.16000	µg/g		
IHE	NO2	NITRITE	LT	28.30000	µg/l		
IHF	NO2	NITRITE	LT	3.16000	µg/g		
IHG	NO2	NITRITE	LT	3.16000	µg/g		
IHI	NO2	NITRITE	LT	3.16000	µg/g		
IHK	NO2	NITRITE	LT	3.16000	µg/g		
IHL	NO2	NITRITE	LT	3.16000	µg/g		
IHM	NO2	NITRITE	LT	3.16000	µg/g		
IHO	NO2	NITRITE	LT	3.16000	µg/g		
IHP	NO2	NITRITE	LT	3.16000	µg/g		
IHQ	NO2	NITRITE	LT	3.16000	µg/g		
IHR	NO2	NITRITE	LT	3.16000	µg/g		
IHS	NO2	NITRITE	LT	3.16000	µg/g		
IHU	NO2	NITRITE	LT	28.30000	µg/l		
IHV	NO2	NITRITE	LT	3.16000	µg/g		
IHW	NO2	NITRITE	LT	28.30000	µg/l		
IHX	NO2	NITRITE	LT	3.16000	µg/g		
IHJ	NO3	NITRATE	LT	3.36000	µg/g		
IHD	NO3	NITRATE	LT	3.36000	µg/g		
IHE	NO3	NITRATE	LT	24.30000	µg/l		
IHF	NO3	NITRATE	LT	3.36000	µg/g		
IHG	NO3	NITRATE	LT	3.36000	µg/g		
IHI	NO3	NITRATE	LT	3.36000	µg/g		
IHK	NO3	NITRATE		2.67000	µg/g	P	
IHL	NO3	NITRATE		2.82000	µg/g	P	
IHM	NO3	NITRATE	LT	3.36000	µg/g		
IHO	NO3	NITRATE	LT	3.36000	µg/g		
IHP	NO3	NITRATE	LT	3.36000	µg/g		
IHQ	NO3	NITRATE	LT	3.36000	µg/g		
IHR	NO3	NITRATE		4.65000	µg/g		
IHS	NO3	NITRATE	LT	3.36000	µg/g		
IHU	NO3	NITRATE	LT	24.30000	µg/l		
IHV	NO3	NITRATE		3.43000	µg/g		
IHW	NO3	NITRATE	LT	24.30000	µg/l		
IHX	NO3	NITRATE	LT	3.36000	µg/g		
IHJ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHJ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHJ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHJ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHD	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHD	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHD	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHD	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHE	PO4	PHOSPHATE	LT	33.00000	µg/l		
IHF	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHF	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHF	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHF	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHG	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHG	PO4	PHOSPHATE	ND	5.00000	µg/g	T	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: ANIONS							
IHG	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHG	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHI	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHI	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHI	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHI	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHK	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHK	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHK	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHK	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHL	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHL	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHL	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHL	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHM	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHM	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHM	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHM	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHO	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHO	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHO	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHO	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHP	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHP	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHP	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHP	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHQ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHQ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHQ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHQ	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHR	PO4	PHOSPHATE		9.56000	µg/g	T	
IHR	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHR	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHR	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHS	PO4	PHOSPHATE		10.60000	µg/g	T	
IHS	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHS	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHS	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHU	PO4	PHOSPHATE	LT	33.00000	µg/l		
IHV	PO4	PHOSPHATE		7.28000	µg/g	T	
IHV	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHV	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHV	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHW	PO4	PHOSPHATE	LT	33.00000	µg/l		
IHX	PO4	PHOSPHATE		5.69000	µg/g	T	
IHX	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHX	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHX	PO4	PHOSPHATE	ND	5.00000	µg/g	T	
IHJ	SO4	SULFATE		26.50000	µg/g		
IHD	SO4	SULFATE		27.00000	µg/g		
IHF	SO4	SULFATE		31.90000	µg/g		
IHG	SO4	SULFATE		25.00000	µg/g		
IHH	SO4	SULFATE	LT	137.00000	µg/l		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: ANIONS							
IHI	SO4	SULFATE		24.20000	µg/g		
IHK	SO4	SULFATE		27.40000	µg/g		
IHL	SO4	SULFATE		25.60000	µg/g		
IHM	SO4	SULFATE		26.40000	µg/g		
IHO	SO4	SULFATE		27.90000	µg/g		
IHP	SO4	SULFATE		26.50000	µg/g		
IHQ	SO4	SULFATE		26.10000	µg/g		
IHR	SO4	SULFATE	GT	500.00000	µg/g		
IHS	SO4	SULFATE		59.30000	µg/g		
IHU	SO4	SULFATE	LT	137.00000	µg/l		
IHV	SO4	SULFATE		59.70000	µg/g		
IHW	SO4	SULFATE	LT	137.00000	µg/l		
IHX	SO4	SULFATE		57.20000	µg/g		
Chemical Class: CYANIDE							
ZTY	CYN	CYANIDE	LT	5.00000	µg/g		
ZUD	CYN	CYANIDE	LT	5.00000	µg/l		
ZUG	CYN	CYANIDE	LT	5.00000	µg/g		
ZUK	CYN	CYANIDE	LT	5.00000	µg/g		
ZUJ	CYN	CYANIDE	LT	5.00000	µg/g		
ZUQ	CYN	CYANIDE	LT	5.00000	µg/g		
ZUP	CYN	CYANIDE	LT	5.00000	µg/l		
ZUO	CYN	CYANIDE	LT	5.00000	µg/g		
ZUN	CYN	CYANIDE	LT	5.00000	µg/g		
ZUM	CYN	CYANIDE	LT	5.00000	µg/g		
ZUF	CYN	CYANIDE	LT	5.00000	µg/g		
ZUC	CYN	CYANIDE	LT	5.00000	µg/g		
ZUA	CYN	CYANIDE	LT	5.00000	µg/g		
ZUB	CYN	CYANIDE	LT	5.00000	µg/g		
Chemical Class: DIOXINS							
ZUH	OCDD	OCTACHLORODIBENZODIOXIN		0.00003	µg/g		
ZUI	OCDD	OCTACHLORODIBENZODIOXIN		0.00100	µg/l		
ZUT	OCDD	OCTACHLORODIBENZODIOXIN		0.00004	µg/g		
ZUU	OCDD	OCTACHLORODIBENZODIOXIN		0.00040	µg/l		
ZUH	OCDF	OCTACHLORODIBENZOFURAN	ND	0.00000	µg/g	R	
ZUI	OCDF	OCTACHLORODIBENZOFURAN	ND	0.00001	µg/l	R	
ZUT	OCDF	OCTACHLORODIBENZOFURAN	ND	0.00000	µg/g	R	
ZUU	OCDF	OCTACHLORODIBENZOFURAN	ND	0.00003	µg/l	R	
ZUH	TCDD	2,3,7,8 TETRACHLORODIBENZODIOXIN	ND	0.00000	µg/g	R	
ZUI	TCDD	2,3,7,8 TETRACHLORODIBENZODIOXIN	ND	0.00000	µg/l	R	
ZUT	TCDD	2,3,7,8 TETRACHLORODIBENZODIOXIN	ND	0.00000	µg/g	R	
ZUU	TCDD	2,3,7,8 TETRACHLORODIBENZODIOXIN	ND	0.00000	µg/l	R	
ZUH	TCDF	2,3,7,8 TETRACHLORODIBENZOFURAN	ND	0.00000	µg/g	R	
ZUI	TCDF	2,3,7,8 TETRACHLORODIBENZOFURAN	ND	0.00000	µg/l	R	
ZUT	TCDF	2,3,7,8 TETRACHLORODIBENZOFURAN		0.00000	µg/g		
ZUU	TCDF	2,3,7,8 TETRACHLORODIBENZOFURAN	ND	0.00000	µg/l	R	
ZUH	THCDD	TOTAL HEXACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/g	R	
ZUI	THCDD	TOTAL HEXACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/l	R	
ZUT	THCDD	TOTAL HEXACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/g	R	
ZUU	THCDD	TOTAL HEXACHLORODIBENZO-P-DIOXINS	ND	0.00001	µg/l	R	
ZUH	THCDF	TOTAL HEXACHLORODIBENZOFURANS	ND	0.00000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: DIOXINS						
ZUI	THCDF TOTAL HEXACHLORODIBENZOFURANS	ND	0.00000	µg/l	R	
ZUT	THCDF TOTAL HEXACHLORODIBENZOFURANS		0.00000	µg/g		
ZUU	THCDF TOTAL HEXACHLORODIBENZOFURANS	ND	0.00001	µg/l	R	
ZUH	THPCD TOTAL HEPTACHLORODIBENZO-P-DIOXIN		0.00000	µg/g		
ZUI	THPCD TOTAL HEPTACHLORODIBENZO-P-DIOXIN	ND	0.00005	µg/l	R	
ZUT	THPCD TOTAL HEPTACHLORODIBENZO-P-DIOXIN		0.00000	µg/g		
ZUU	THPCD TOTAL HEPTACHLORODIBENZO-P-DIOXIN	ND	0.00005	µg/l	R	
ZUH	THPCDF TOTAL HEPTACHLORODIBENZOFURANS	ND	0.00000	µg/g	R	
ZUI	THPCDF TOTAL HEPTACHLORODIBENZOFURANS	ND	0.00000	µg/l	R	
ZUT	THPCDF TOTAL HEPTACHLORODIBENZOFURANS	ND	0.00000	µg/g	R	
ZUU	THPCDF TOTAL HEPTACHLORODIBENZOFURANS	ND	0.00001	µg/l	R	
ZUH	TPCDD TOTAL PENTACHLORODIBENZO-P-DIOXIN	ND	0.00000	µg/g	R	
ZUI	TPCDD TOTAL PENTACHLORODIBENZO-P-DIOXIN	ND	0.00001	µg/l	R	
ZUT	TPCDD TOTAL PENTACHLORODIBENZO-P-DIOXIN	ND	0.00000	µg/g	R	
ZUU	TPCDD TOTAL PENTACHLORODIBENZO-P-DIOXIN	ND	0.00001	µg/l	R	
ZUH	TPCDF TOTAL PENTACHLORODIBENZOFURANS	ND	0.00000	µg/g	R	
ZUI	TPCDF TOTAL PENTACHLORODIBENZOFURANS	ND	0.00000	µg/l	R	
ZUT	TPCDF TOTAL PENTACHLORODIBENZOFURANS		0.00000	µg/g		
ZUU	TPCDF TOTAL PENTACHLORODIBENZOFURANS	ND	0.00001	µg/l	R	
ZUH	TTCDD TOTAL TETRACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/g	R	
ZUI	TTCDD TOTAL TETRACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/l	R	
ZUT	TTCDD TOTAL TETRACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/g	R	
ZUU	TTCDD TOTAL TETRACHLORODIBENZO-P-DIOXINS	ND	0.00000	µg/l	R	
ZUH	TTCDF TOTAL TETRACHLORODIBENZOFURANS	ND	0.00000	µg/g	R	
ZUI	TTCDF TOTAL TETRACHLORODIBENZOFURANS	ND	0.00000	µg/l	R	
ZUT	TTCDF TOTAL TETRACHLORODIBENZOFURANS		0.00000	µg/g		
ZUU	TTCDF TOTAL TETRACHLORODIBENZOFURANS	ND	0.00000	µg/l	R	
Chemical Class: EXPLOSIVES						
EGV	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGU	135TNB 1,3,5-TRINITROBENZENE	LT	0.38800	µg/l		
EGT	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGP	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGL	135TNB 1,3,5-TRINITROBENZENE	LT	0.38800	µg/l		
EGK	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGJ	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGI	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGH	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGG	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGF	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGE	135TNB 1,3,5-TRINITROBENZENE	LT	0.35200	µg/g		
EGL	13DNB 1,3-DINITROBENZENE	LT	0.27000	µg/l		
EGK	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGJ	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGI	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGH	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGG	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGF	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGE	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGV	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGU	13DNB 1,3-DINITROBENZENE	LT	0.27000	µg/l		
EGT	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		
EGP	13DNB 1,3-DINITROBENZENE	LT	0.30400	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: EXPLOSIVES							
EGV	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGU	246TNT	2,4,6-TRINITROTOLUENE	LT	0.76700	µg/l		
EGT	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGP	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGL	246TNT	2,4,6-TRINITROTOLUENE	LT	0.76700	µg/l		
EGK	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGJ	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGI	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGH	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGG	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGF	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGE	246TNT	2,4,6-TRINITROTOLUENE	LT	0.93100	µg/g		
EGL	24DNT	2,4-DINITROTOLUENE	LT	1.16000	µg/l		
EGK	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGJ	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGI	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGH	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGG	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGF	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGE	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGV	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGU	24DNT	2,4-DINITROTOLUENE	LT	1.16000	µg/l		
EGT	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGP	24DNT	2,4-DINITROTOLUENE	LT	0.74400	µg/g		
EGH	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGG	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGF	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGE	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGV	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGU	26DNT	2,6-DINITROTOLUENE	LT	1.11000	µg/l		
EGT	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGP	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGL	26DNT	2,6-DINITROTOLUENE	LT	1.11000	µg/l		
EGK	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGJ	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGI	26DNT	2,6-DINITROTOLUENE	LT	0.83000	µg/g		
EGE	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGH	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGI	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGG	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGF	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGJ	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGP	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGK	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGV	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGT	2NT	2-NITROTOLUENE	LT	1.59000	µg/g		
EGE	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGF	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGG	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGH	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGI	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGJ	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGK	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: EXPLOSIVES							
EGL	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.86900	µg/l		
EGP	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGT	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGU	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.86900	µg/l		
EGV	HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	LT	0.75500	µg/g		
EGE	NB	NITROBENZENE	LT	1.04000	µg/g		
EGF	NB	NITROBENZENE	LT	1.04000	µg/g		
EGG	NB	NITROBENZENE	LT	1.04000	µg/g		
EGH	NB	NITROBENZENE	LT	1.04000	µg/g		
EGI	NB	NITROBENZENE	LT	1.04000	µg/g		
EGJ	NB	NITROBENZENE	LT	1.04000	µg/g		
EGK	NB	NITROBENZENE	LT	1.04000	µg/g		
EGL	NB	NITROBENZENE	LT	1.54000	µg/l		
EGP	NB	NITROBENZENE	LT	1.04000	µg/g		
EGT	NB	NITROBENZENE	LT	1.04000	µg/g		
EGU	NB	NITROBENZENE	LT	1.54000	µg/l		
EGV	NB	NITROBENZENE	LT	1.04000	µg/g		
SKM	NB	NITROBENZENE	ND	0.33000	µg/g		R
SKN	NB	NITROBENZENE	ND	0.33000	µg/g		R
EGE	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGF	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGG	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGH	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGI	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGJ	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGK	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGL	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.61700	µg/l		
EGP	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGT	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGU	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.61700	µg/l		
EGV	RDX	CYCLOTRIMETHYLENETRINITRAMINE	LT	0.44500	µg/g		
EGE	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGF	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGG	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGH	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGI	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGJ	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGK	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGL	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	0.19100	µg/l		
EGP	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGT	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
EGU	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	0.19100	µg/l		
EGV	TETRYL	N-METHYL-N2,4,6-TETRANITROANILINE	LT	1.04000	µg/g		
Chemical Class: METALS							
FOB	AG	SILVER	LT	0.01500	µg/g		
FOG	AG	SILVER	LT	0.01500	µg/g		
FPE	AG	SILVER	LT	0.01500	µg/g		
FPI	AG	SILVER	LT	0.01500	µg/g		
MFV	AG	SILVER	LT	32.00000	µg/l		
FPK	AG	SILVER	LT	0.31600	µg/l		
MFW	AG	SILVER	LT	32.00000	µg/l		
FPG	AG	SILVER	LT	0.01500	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: METALS							
FPA	AG	SILVER	LT	0.01500	µg/g		
MFV	AS	ARSENIC	LT	43.80000	µg/l		
MFV	AS	ARSENIC	LT	43.80000	µg/l		
MFU	AS	ARSENIC	LT	24.00000	µg/g		
MFT	AS	ARSENIC	LT	24.00000	µg/g		
MFS	AS	ARSENIC	LT	24.00000	µg/g		
MFR	AS	ARSENIC	LT	24.00000	µg/g		
MFP	AS	ARSENIC	LT	24.00000	µg/g		
MFQ	AS	ARSENIC	LT	24.00000	µg/g		
MFK	AS	ARSENIC	LT	24.00000	µg/g		
MFK	BA	BARIUM	LT	2.61000	µg/g		
MFQ	BA	BARIUM	LT	2.61000	µg/g		
MFS	BA	BARIUM	LT	2.61000	µg/g		
MFT	BA	BARIUM	LT	2.61000	µg/g		
MFR	BA	BARIUM	LT	2.61000	µg/g		
MFP	BA	BARIUM	LT	2.61000	µg/g		
MFU	BA	BARIUM	LT	2.61000	µg/g		
MFV	BA	BARIUM	LT	1.52000	µg/l		
MFV	BA	BARIUM	LT	1.52000	µg/l		
MFQ	BE	BERYLLIUM	LT	0.07800	µg/g		
MFP	BE	BERYLLIUM	LT	0.07800	µg/g		
MFR	BE	BERYLLIUM	LT	0.07800	µg/g		
MFT	BE	BERYLLIUM	LT	0.07800	µg/g		
MFV	BE	BERYLLIUM	LT	0.34100	µg/l		
MFU	BE	BERYLLIUM	LT	0.07800	µg/g		
MFS	BE	BERYLLIUM	LT	0.07800	µg/g		
MFK	BE	BERYLLIUM	LT	0.07800	µg/g		
MFK	CD	CADMIUM	LT	0.42400	µg/g		
MFQ	CD	CADMIUM	LT	0.42400	µg/g		
MFP	CD	CADMIUM	LT	0.42400	µg/g		
MFR	CD	CADMIUM	LT	0.42400	µg/g		
MFT	CD	CADMIUM	LT	0.42400	µg/g		
MFS	CD	CADMIUM	LT	0.42400	µg/g		
MFV	CD	CADMIUM	LT	2.67000	µg/l		
MFV	CD	CADMIUM	LT	2.67000	µg/l		
MFU	CD	CADMIUM	LT	0.42400	µg/g		
MFQ	CR	CHROMIUM	LT	3.90000	µg/g		
MFU	CR	CHROMIUM	LT	3.90000	µg/g		
MFV	CR	CHROMIUM	LT	4.47000	µg/l		
MFV	CR	CHROMIUM	LT	4.47000	µg/l		
MFT	CR	CHROMIUM	LT	3.90000	µg/g		
MFP	CR	CHROMIUM	LT	3.90000	µg/g		
MFR	CR	CHROMIUM	LT	3.90000	µg/g		
MFS	CR	CHROMIUM	LT	3.90000	µg/g		
MFK	CR	CHROMIUM	LT	3.90000	µg/g		
MFK	CU	COPPER	LT	1.95000	µg/g		
MFQ	CU	COPPER	LT	1.95000	µg/g		
MFV	CU	COPPER	LT	4.29000	µg/l		
MFU	CU	COPPER	LT	1.95000	µg/g		
MFP	CU	COPPER	LT	1.95000	µg/g		
MFR	CU	COPPER	LT	1.95000	µg/g		
MFS	CU	COPPER	LT	1.95000	µg/g		
MFT	CU	COPPER	LT	1.95000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: METALS</i>							
MFP	FE	IRON	LT	1.89000	µg/g		
MFR	FE	IRON		3.58000	µg/g		
MFS	FE	IRON	LT	1.89000	µg/g		
MFT	FE	IRON	LT	1.89000	µg/g		
MFU	FE	IRON	LT	1.89000	µg/g		
MFV	FE	IRON	LT	24.60000	µg/l		
MFQ	FE	IRON	LT	1.89000	µg/g		
MFK	FE	IRON	LT	1.89000	µg/g		
DEL	HG	MERCURY	LT	0.02600	µg/g		
DEM	HG	MERCURY		0.68200	µg/l		
DEN	HG	MERCURY	LT	0.56600	µg/l		
DEO	HG	MERCURY	LT	0.02600	µg/g		
DEP	HG	MERCURY	LT	0.02600	µg/g		
DEQ	HG	MERCURY	LT	0.02600	µg/g		
DET	HG	MERCURY	LT	0.02600	µg/g		
DEU	HG	MERCURY	LT	0.56600	µg/l		
DEV	HG	MERCURY	LT	0.02600	µg/g		
MFP	NI	NICKEL	LT	2.46000	µg/g		
MFR	NI	NICKEL	LT	2.46000	µg/g		
MFS	NI	NICKEL	LT	2.46000	µg/g		
MFT	NI	NICKEL	LT	2.46000	µg/g		
MFU	NI	NICKEL	LT	2.46000	µg/g		
MFV	NI	NICKEL	LT	8.76000	µg/l		
MFQ	NI	NICKEL	LT	2.46000	µg/g		
MFK	NI	NICKEL	LT	2.46000	µg/g		
FNZ	PB	LEAD	LT	0.31900	µg/g		
FOH	PB	LEAD	LT	0.31900	µg/g		
FPB	PB	LEAD	LT	0.31900	µg/g		
FPD	PB	LEAD	LT	4.74000	µg/l		
FPF	PB	LEAD	LT	0.31900	µg/g		
FPL	PB	LEAD	LT	0.31900	µg/g		
MFV	PB	LEAD	LT	40.60000	µg/l		
MFW	PB	LEAD	LT	40.60000	µg/l		
MFQ	SB	ANTIMONY	LT	3.42000	µg/g		
MFP	SB	ANTIMONY	LT	3.42000	µg/g		
MFR	SB	ANTIMONY	LT	3.42000	µg/g		
MFS	SB	ANTIMONY	LT	3.42000	µg/g		
MFT	SB	ANTIMONY	LT	3.42000	µg/g		
MFU	SB	ANTIMONY	LT	3.42000	µg/g		
MFV	SB	ANTIMONY	LT	51.20000	µg/l		
MFK	SB	ANTIMONY	LT	3.42000	µg/g		
MFK	SE	SELENIUM	LT	50.70000	µg/g		
MFP	SE	SELENIUM	LT	50.70000	µg/g		
MFR	SE	SELENIUM	LT	50.70000	µg/g		
MFS	SE	SELENIUM	LT	50.70000	µg/g		
MFT	SE	SELENIUM	LT	50.70000	µg/g		
MFU	SE	SELENIUM	LT	50.70000	µg/g		
MFV	SE	SELENIUM	LT	104.00000	µg/l		
MFW	SE	SELENIUM	LT	104.00000	µg/l		
MFQ	SE	SELENIUM	LT	50.70000	µg/g		
MFP	TL	THALLIUM	LT	16.60000	µg/g		
MFR	TL	THALLIUM	LT	16.60000	µg/g		
MFS	TL	THALLIUM	LT	16.60000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: METALS							
MFT	TL	THALLIUM	LT	16.60000	µg/g		
MFU	TL	THALLIUM	LT	16.60000	µg/g		
MFV	TL	THALLIUM	LT	114.00000	µg/l		
MFQ	TL	THALLIUM	LT	16.60000	µg/g		
MFK	TL	THALLIUM	LT	16.60000	µg/g		
MFP	ZN	ZINC	LT	7.96000	µg/g		
MFR	ZN	ZINC	LT	7.96000	µg/g		
MFS	ZN	ZINC	LT	7.96000	µg/g		
MFT	ZN	ZINC	LT	7.96000	µg/g		
MFU	ZN	ZINC	LT	7.96000	µg/g		
MFV	ZN	ZINC	LT	19.40000	µg/l		
MFQ	ZN	ZINC	LT	7.96000	µg/g		
MFK	ZN	ZINC	LT	7.96000	µg/g		
Chemical Class: PESTICIDES							
CDX	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CDX	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CDY	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00600	µg/l		
CEE	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CEF	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00600	µg/l		
CEF	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00600	µg/l		
SKN	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKM	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
CEE	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CDY	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.00600	µg/l		
CEF	ACLDA	ALPHA CHLORDANE	LT	0.00200	µg/l		
CEE	ACLDA	ALPHA CHLORDANE	LT	0.00200	µg/g		
SKN	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g	R	
SKM	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g	R	
CDX	ACLDA	ALPHA CHLORDANE	LT	0.00200	µg/g		
CDY	ACLDA	ALPHA CHLORDANE	LT	0.00200	µg/l		
CEE	ACLDA	ALPHA CHLORDANE	LT	0.00200	µg/g		
CDX	ACLDA	ALPHA CHLORDANE	LT	0.00200	µg/g		
CEF	AENSLF	ALPHA-ENDOSULFAN	ND	0.05000	µg/l	T	
CEF	AENSLF	ALPHA-ENDOSULFAN	ND	0.05000	µg/l	T	
CEE	AENSLF	ALPHA-ENDOSULFAN	ND	0.00800	µg/g	T	
CEE	AENSLF	ALPHA-ENDOSULFAN	ND	0.00800	µg/g	T	
CDY	AENSLF	ALPHA-ENDOSULFAN	ND	0.05000	µg/l	T	
CDY	AENSLF	ALPHA-ENDOSULFAN	ND	0.05000	µg/l	T	
SKN	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g	R	
SKM	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g	R	
CDX	AENSLF	ALPHA-ENDOSULFAN	LT	0.00800	µg/g		
CDX	AENSLF	ALPHA-ENDOSULFAN	LT	0.00800	µg/g		
CDY	ALDRN	ALDRIN	ND	0.05000	µg/l	T	
CEE	ALDRN	ALDRIN	LT	0.00800	µg/g		
CEF	ALDRN	ALDRIN	ND	0.05000	µg/l	T	
SKN	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKM	ALDRN	ALDRIN	LT	0.29000	µg/g		
CEF	ALDRN	ALDRIN	ND	0.05000	µg/l	T	
CDY	ALDRN	ALDRIN	ND	0.05000	µg/l	T	
CDX	ALDRN	ALDRIN	LT	0.00800	µg/g		
CDX	BBHC	BETA-BENZENEHEXACHLORIDE	LT	0.00800	µg/g		
CDX	BBHC	BETA-BENZENEHEXACHLORIDE	LT	0.00800	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: PESTICIDES						
CDY	BBHC BETA-BENZENEHEXACHLORIDE	ND	0.05000	µg/l	T	
CEE	BBHC BETA-BENZENEHEXACHLORIDE	ND	0.00800	µg/g	T	
CEF	BBHC BETA-BENZENEHEXACHLORIDE	ND	0.05000	µg/l	T	
CEF	BBHC BETA-BENZENEHEXACHLORIDE	ND	0.05000	µg/l	T	
SKN	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKM	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
CEE	BBHC BETA-BENZENEHEXACHLORIDE	ND	0.00800	µg/g	T	
CDY	BBHC BETA-BENZENEHEXACHLORIDE	ND	0.05000	µg/l	T	
CDX	BENSLF BETA-ENDOSULFAN	LT	0.01600	µg/g		
CDY	BENSLF BETA-ENDOSULFAN	ND	0.10000	µg/l	T	
CEE	BENSLF BETA-ENDOSULFAN	ND	0.01600	µg/g	T	
CEF	BENSLF BETA-ENDOSULFAN	ND	0.10000	µg/l	T	
SKN	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKM	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
CEF	BENSLF BETA-ENDOSULFAN	ND	0.10000	µg/l	T	
CEE	BENSLF BETA-ENDOSULFAN	ND	0.01600	µg/g	T	
CDY	BENSLF BETA-ENDOSULFAN	ND	0.10000	µg/l	T	
CDX	BENSLF BETA-ENDOSULFAN	LT	0.01600	µg/g		
CDY	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.03700	µg/l		
CDY	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.03700	µg/l		
CEE	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CEE	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CEF	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.03700	µg/l		
CEF	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.03700	µg/l		
CDX	DLDNR DIELDRIN	LT	0.00500	µg/g		
CDY	DLDNR DIELDRIN	LT	0.02200	µg/l		
CEE	DLDNR DIELDRIN	LT	0.00500	µg/g		
CEF	DLDNR DIELDRIN	LT	0.02200	µg/l		
SKM	DLDNR DIELDRIN	LT	0.30000	µg/g		
SKN	DLDNR DIELDRIN	LT	0.30000	µg/g		
CDX	ENDRN ENDRIN	LT	0.00800	µg/g		
CDY	ENDRN ENDRIN	LT	0.00800	µg/l		
CEE	ENDRN ENDRIN	LT	0.00800	µg/g		
CEF	ENDRN ENDRIN	LT	0.00800	µg/l		
SKM	ENDRN ENDRIN	LT	0.41000	µg/g		
SKN	ENDRN ENDRIN	LT	0.41000	µg/g		
CDX	ENDRN ENDRIN ALDEHYDE	LT	0.01600	µg/g		
CDX	ENDRN ENDRIN ALDEHYDE	LT	0.01600	µg/g		
CDY	ENDRN ENDRIN ALDEHYDE	ND	0.10000	µg/l	T	
CDY	ENDRN ENDRIN ALDEHYDE	ND	0.10000	µg/l	T	
CEE	ENDRN ENDRIN ALDEHYDE	ND	0.01600	µg/g	T	
CEE	ENDRN ENDRIN ALDEHYDE	ND	0.01600	µg/g	T	
CEF	ENDRN ENDRIN ALDEHYDE	ND	0.10000	µg/l	T	
CEF	ENDRN ENDRIN ALDEHYDE	ND	0.10000	µg/l	T	
CDY	ENDRN ENDRIN KETONE	ND	0.10000	µg/l	T	
CDY	ENDRN ENDRIN KETONE	ND	0.10000	µg/l	T	
CEE	ENDRN ENDRIN KETONE	ND	0.01600	µg/g	T	
CEE	ENDRN ENDRIN KETONE	ND	0.01600	µg/g	T	
CEF	ENDRN ENDRIN KETONE	ND	0.10000	µg/l	T	
CEF	ENDRN ENDRIN KETONE	ND	0.10000	µg/l	T	
CDX	ESFSO4 ENDOSULFAN SULFATE	LT	0.01600	µg/g		
CDX	ESFSO4 ENDOSULFAN SULFATE	LT	0.01600	µg/g		
CDY	ESFSO4 ENDOSULFAN SULFATE	ND	0.10000	µg/l	T	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: PESTICIDES						
CDY	ESFSO4 ENDOSULFAN SULFATE	ND	0.10000	µg/l	T	
CEE	ESFSO4 ENDOSULFAN SULFATE	ND	0.01600	µg/g	T	
CEE	ESFSO4 ENDOSULFAN SULFATE	ND	0.01600	µg/g	T	
CEF	ESFSO4 ENDOSULFAN SULFATE	ND	0.10000	µg/l	T	
CEF	ESFSO4 ENDOSULFAN SULFATE	ND	0.10000	µg/l	T	
SKM	ESFSO4 ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKN	ESFSO4 ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
CDX	GCLDA GAMMA-CHLORDANE	LT	0.00400	µg/g		
CDY	GCLDA GAMMA-CHLORDANE	LT	0.03100	µg/l		
CDY	GCLDA GAMMA-CHLORDANE	LT	0.03100	µg/l		
CEE	GCLDA GAMMA-CHLORDANE	LT	0.00400	µg/g		
CEF	GCLDA GAMMA-CHLORDANE	LT	0.03100	µg/l		
CEF	GCLDA GAMMA-CHLORDANE	LT	0.03100	µg/l		
SKM	GCLDA GAMMA-CHLORDANE	ND	5.00000	µg/g	R	
SKN	GCLDA GAMMA-CHLORDANE	ND	5.00000	µg/g	R	
CDX	HPCL HEPTACHLOR		0.00200	µg/g	U	
CDY	HPCL HEPTACHLOR	LT	0.00800	µg/l		
CEE	HPCL HEPTACHLOR	LT	0.00100	µg/g		
CEF	HPCL HEPTACHLOR	LT	0.00800	µg/l		
SKM	HPCL HEPTACHLOR	LT	0.28000	µg/g		
SKN	HPCL HEPTACHLOR	LT	0.28000	µg/g		
CDX	HPCLE HEPTACHLOREPOXIDE	LT	0.00400	µg/g		
CDX	HPCLE HEPTACHLOREPOXIDE	LT	0.00400	µg/g		
CDY	HPCLE HEPTACHLOREPOXIDE	LT	0.06100	µg/l		
CDY	HPCLE HEPTACHLOREPOXIDE	LT	0.06100	µg/l		
CEE	HPCLE HEPTACHLOREPOXIDE	LT	0.00400	µg/g		
CEE	HPCLE HEPTACHLOREPOXIDE	LT	0.00400	µg/g		
CEF	HPCLE HEPTACHLOREPOXIDE	LT	0.06100	µg/l		
CEF	HPCLE HEPTACHLOREPOXIDE	LT	0.06100	µg/l		
SKM	HPCLE HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKN	HPCLE HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
CDX	ISODR ISODRIN	LT	0.00800	µg/g		
CDX	ISODR ISODRIN	LT	0.00800	µg/g		
CDY	ISODR ISODRIN	LT	0.13400	µg/l		
CDY	ISODR ISODRIN	LT	0.13400	µg/l		
CEE	ISODR ISODRIN	LT	0.00800	µg/g		
CEE	ISODR ISODRIN	LT	0.00800	µg/g		
CEF	ISODR ISODRIN	LT	0.13400	µg/l		
CEF	ISODR ISODRIN	LT	0.13400	µg/l		
CDX	LIN LINDANE	LT	0.00500	µg/g		
CDY	LIN LINDANE	LT	0.03300	µg/l		
CEE	LIN LINDANE	LT	0.00500	µg/g		
CEF	LIN LINDANE	LT	0.03300	µg/l		
SKM	LIN LINDANE	LT	0.43000	µg/g		
SKN	LIN LINDANE	LT	0.43000	µg/g		
CDX	MEXCL METHOXYCHLOR	LT	0.08000	µg/g		
CDX	MEXCL METHOXYCHLOR	LT	0.08000	µg/g		
CDY	MEXCL METHOXYCHLOR	ND	0.50000	µg/l	T	
CDY	MEXCL METHOXYCHLOR	ND	0.50000	µg/l	T	
CEE	MEXCL METHOXYCHLOR	ND	0.08000	µg/g	T	
CEE	MEXCL METHOXYCHLOR	ND	0.08000	µg/g	T	
CEF	MEXCL METHOXYCHLOR	ND	0.50000	µg/l	T	
CEF	MEXCL METHOXYCHLOR	ND	0.50000	µg/l	T	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: PESTICIDES						
SKM	MEXCL METHOXYCHLOR	ND	1.00000	µg/g	R	
SKN	MEXCL METHOXYCHLOR	ND	1.00000	µg/g	R	
CDY	PCB016 PCB 1016	LT	0.06800	µg/l		
CEE	PCB016 PCB 1016	LT	0.07000	µg/g		
CEF	PCB016 PCB 1016	LT	0.06800	µg/l		
CDY	PCB260 PCB 1260	LT	0.07500	µg/l		
CEE	PCB260 PCB 1260	LT	0.05400	µg/g		
CEF	PCB260 PCB 1260	LT	0.07500	µg/l		
CDX	PPDDD 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.01000	µg/g		
CDY	PPDDD 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.02000	µg/l		
CEE	PPDDD 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.01000	µg/g		
CEF	PPDDD 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.02000	µg/l		
SKM	PPDDD 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKN	PPDDD 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
CDX	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.00400	µg/g		
CDX	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.00400	µg/g		
CDY	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.08800	µg/l		
CDY	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.08800	µg/l		
CEE	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.00400	µg/g		
CEE	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.00400	µg/g		
CEF	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.08800	µg/l		
CEF	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.08800	µg/l		
SKM	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKN	PPDDE 2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
CDX	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE		0.12100	µg/g	U	
CDX	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE		0.15100	µg/g	U	
CDY	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	ND	0.10000	µg/l	T	
CDY	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	ND	0.10000	µg/l	T	
CEE	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	ND	0.01600	µg/g	T	
CEE	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	ND	0.01600	µg/g	T	
CEF	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	ND	0.10000	µg/l	T	
CEF	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	ND	0.10000	µg/l	T	
SKM	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKN	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
CDY	TXPHE TOXAPHENE	ND	1.00000	µg/l	T	
CDY	TXPHE TOXAPHENE	ND	1.00000	µg/l	T	
CEE	TXPHE TOXAPHENE	ND	0.16000	µg/g	T	
CEE	TXPHE TOXAPHENE	ND	0.16000	µg/g	T	
CEF	TXPHE TOXAPHENE	ND	1.00000	µg/l	T	
CEF	TXPHE TOXAPHENE	ND	1.00000	µg/l	T	
Chemical Class: SEMIVOLATILES						
SJV	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SJX	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKB	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SJZ	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKP	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKO	123TCB 1,2,3-TRICHLORO BENZENE	LT	3.60000	µg/l		
SKN	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKM	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKK	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKJ	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		
SKF	123TCB 1,2,3-TRICHLORO BENZENE	LT	0.29000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SKE	123TCB 1,2,3-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKD	123TCB 1,2,3-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKC	123TCB 1,2,3-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJW	123TCB 1,2,3-TRICHLOROBENZENE	LT	3.60000	µg/l		
SJU	123TCB 1,2,3-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJT	123TCB 1,2,3-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJW	124TCB 1,2,4-TRICHLOROBENZENE	LT	2.80000	µg/l		
SJZ	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKC	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKB	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKP	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKO	124TCB 1,2,4-TRICHLOROBENZENE	LT	2.80000	µg/l		
SKN	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKM	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKK	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKJ	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKF	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKE	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKD	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJX	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJV	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJT	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SJU	124TCB 1,2,4-TRICHLOROBENZENE	LT	0.29000	µg/g		
SKN	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKM	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKK	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKJ	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKF	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKE	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKD	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKC	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKP	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SKO	12DCLB 1,2-DICHLOROBENZENE	LT	10.00000	µg/l		
SKB	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SJZ	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SJX	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SJW	12DCLB 1,2-DICHLOROBENZENE	LT	10.00000	µg/l		
SJV	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SJU	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SJT	12DCLB 1,2-DICHLOROBENZENE	LT	0.33000	µg/g		
SJW	13DCLB 1,3-DICHLOROBENZENE	LT	8.50000	µg/l		
SJZ	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKC	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKB	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKP	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKO	13DCLB 1,3-DICHLOROBENZENE	LT	8.50000	µg/l		
SKN	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKM	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKK	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKJ	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKF	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKE	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SKD	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SJX	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SJV	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SJT	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SJU	13DCLB 1,3-DICHLOROBENZENE	LT	0.33000	µg/g		
SJU	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SJW	14DCLB 1,4-DICHLOROBENZENE	LT	4.40000	µg/l		
SJZ	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKC	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKE	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKJ	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKF	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKP	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKO	14DCLB 1,4-DICHLOROBENZENE	LT	4.40000	µg/l		
SKN	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKM	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKK	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKD	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKB	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SJX	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SJV	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SJT	14DCLB 1,4-DICHLOROBENZENE	LT	0.32000	µg/g		
SKJ	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKF	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKE	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKD	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKC	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKB	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SJZ	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SJX	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKP	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKO	245TCP 2,4,5-TRICHLOROPHENOL	ND	50.00000	µg/l	R	
SKN	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKM	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SKK	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SJW	245TCP 2,4,5-TRICHLOROPHENOL	ND	50.00000	µg/l	R	
SJV	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SJU	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SJT	245TCP 2,4,5-TRICHLOROPHENOL	ND	1.70000	µg/g	R	
SJV	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SJX	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKB	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKD	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKF	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKE	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKP	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKO	246TCP 2,4,6-TRICHLOROPHENOL	ND	10.00000	µg/l	R	
SKN	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKM	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKK	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKJ	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKC	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SJZ	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SJW	246TCP 2,4,6-TRICHLOROPHENOL	ND	10.00000	µg/l	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SJU	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SJT	246TCP 2,4,6-TRICHLOROPHENOL	ND	0.30000	µg/g	R	
SKC	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKB	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKP	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKO	24DCLP 2,4-DICHLOROPHENOL	ND	10.00000	µg/l	R	
SKN	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKM	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKK	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKJ	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKF	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKE	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKD	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SJU	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SJW	24DCLP 2,4-DICHLOROPHENOL	ND	10.00000	µg/l	R	
SJX	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SJZ	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SJV	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SJT	24DCLP 2,4-DICHLOROPHENOL	ND	0.33000	µg/g	R	
SKJ	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKF	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKE	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKD	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKC	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKB	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SJZ	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SJX	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKP	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKO	24DMP 2,4-DIMETHYLPHENOL	ND	10.00000	µg/l	R	
SKN	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKM	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SKK	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SJW	24DMP 2,4-DIMETHYLPHENOL	ND	10.00000	µg/l	R	
SJV	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SJU	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SJT	24DMP 2,4-DIMETHYLPHENOL	ND	0.33000	µg/g	R	
SJT	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SJV	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SJX	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKB	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKD	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKF	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKE	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKP	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKO	24DNP 2,4-DINITROPHENOL	ND	50.00000	µg/l	R	
SKN	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKM	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKK	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKJ	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SKC	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SJZ	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	
SJW	24DNP 2,4-DINITROPHENOL	ND	50.00000	µg/l	R	
SJU	24DNP 2,4-DINITROPHENOL	ND	1.70000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SKP	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKO	24DNT 2,4-DINITROTOLUENE	LT	5.50000	µg/l		
SKN	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKM	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKK	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKJ	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKF	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKE	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKD	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKC	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKB	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SJZ	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SJX	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SJW	24DNT 2,4-DINITROTOLUENE	LT	5.50000	µg/l		
SJV	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SJU	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SJT	24DNT 2,4-DINITROTOLUENE	LT	0.39000	µg/g		
SKC	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKB	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SJZ	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SJX	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SJW	26DNT 2,6-DINITROTOLUENE	LT	6.60000	µg/l		
SJV	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SJU	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SJT	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKP	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKO	26DNT 2,6-DINITROTOLUENE	LT	6.60000	µg/l		
SKN	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKM	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKK	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKJ	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKF	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKE	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKD	26DNT 2,6-DINITROTOLUENE	LT	0.53000	µg/g		
SKP	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKO	2CLP 2-CHLOROPHENOL	ND	10.00000	µg/l	R	
SKN	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKM	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKK	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKJ	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKF	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKE	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKD	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKC	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKB	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SJU	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SJV	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SJW	2CLP 2-CHLOROPHENOL	ND	10.00000	µg/l	R	
SJZ	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SJX	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SJT	2CLP 2-CHLOROPHENOL	ND	0.33000	µg/g	R	
SKM	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKK	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SKJ	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKF	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKE	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKD	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKC	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKB	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKP	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SKO	2CNAP 2-CHLORONAPHTHALENE	LT	9.60000	µg/l		
SKN	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SJZ	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SJX	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SJW	2CNAP 2-CHLORONAPHTHALENE	LT	9.60000	µg/l		
SJV	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SJU	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SJT	2CNAP 2-CHLORONAPHTHALENE	LT	0.32000	µg/g		
SJT	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SJU	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SJW	2MNAP 2-METHYLNAPHTHALENE	ND	10.00000	µg/l		R
SKB	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKD	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKF	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKK	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKN	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKM	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKP	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKO	2MNAP 2-METHYLNAPHTHALENE	ND	10.00000	µg/l		R
SKJ	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKE	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SJZ	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SJX	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SJV	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKC	2MNAP 2-METHYLNAPHTHALENE	ND	0.33000	µg/g		R
SKD	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKC	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKB	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SJZ	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SJX	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SJW	2MP 2-METHYLPHENOL	ND	10.00000	µg/l		R
SJV	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SJU	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKP	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKO	2MP 2-METHYLPHENOL	ND	10.00000	µg/l		R
SKN	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKM	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKK	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKJ	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKF	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SKE	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SJT	2MP 2-METHYLPHENOL	ND	0.33000	µg/g		R
SJT	2NANIL 2-NITROANILINE	ND	1.70000	µg/g		R
SJW	2NANIL 2-NITROANILINE	ND	50.00000	µg/l		R
SJX	2NANIL 2-NITROANILINE	ND	1.70000	µg/g		R
SJV	2NANIL 2-NITROANILINE	ND	1.70000	µg/g		R

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SJU	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SJZ	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKC	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKB	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKP	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKO	2NANIL 2-NITROANILINE	ND	50.00000	µg/l	R	
SKN	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKM	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKK	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKJ	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKF	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKE	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SKD	2NANIL 2-NITROANILINE	ND	1.70000	µg/g	R	
SJT	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SJW	2NP 2-NITROPHENOL	ND	10.00000	µg/l	R	
SJX	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SJV	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SJU	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SJZ	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKC	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKB	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKP	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKO	2NP 2-NITROPHENOL	ND	10.00000	µg/l	R	
SKN	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKM	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKK	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKJ	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKF	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKE	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SKD	2NP 2-NITROPHENOL	ND	0.33000	µg/g	R	
SJT	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SJW	33DCBD 3,3-CICHLOROBENZIDINE	ND	6.00000	µg/l	R	
SJU	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SJV	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SJX	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKB	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SJZ	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKO	33DCBD 3,3-CICHLOROBENZIDINE	ND	20.00000	µg/l	R	
SKN	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKM	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKK	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKJ	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKF	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKE	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKD	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKP	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SKC	33DCBD 3,3-CICHLOROBENZIDINE	ND	0.70000	µg/g	R	
SJT	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SJW	3NANIL 3-NITROANILINE	ND	50.00000	µg/l	R	
SJU	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SJV	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SJX	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKB	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SJZ	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKO	3NANIL 3-NITROANILINE	ND	50.00000	µg/l	R	
SKN	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKM	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKK	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKJ	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKF	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKE	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKD	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKP	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SKC	3NANIL 3-NITROANILINE	ND	1.70000	µg/g	R	
SJT	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SJW	46DN2C 4,6-DINITRO-2-CRESOL	ND	50.00000	µg/l	R	
SJU	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SJV	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SJX	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKB	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SJZ	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKP	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKO	46DN2C 4,6-DINITRO-2-CRESOL	ND	50.00000	µg/l	R	
SKN	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKM	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKK	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKJ	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKF	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKE	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKD	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SKC	46DN2C 4,6-DINITRO-2-CRESOL	ND	1.70000	µg/g	R	
SJT	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJW	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	10.00000	µg/l	R	
SJX	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJV	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJU	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJZ	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKC	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKB	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKP	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKO	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	10.00000	µg/l	R	
SKN	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKM	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKK	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKJ	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKF	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKE	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKD	4BRPPE 4-BROMOPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJT	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SJW	4CANIL 4-CHLOROANILINE	ND	10.00000	µg/l	R	
SJX	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SJV	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SJU	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SJZ	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKC	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKB	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SKP	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKO	4CANIL 4-CHLOROANILINE	ND	10.00000	µg/l	R	
SKN	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKM	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKK	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKJ	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKF	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKE	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SKD	4CANIL 4-CHLOROANILINE	ND	0.33000	µg/g	R	
SJT	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SJW	4CL3C 4-CHLORO-3-CRESOL	ND	10.00000	µg/l	R	
SJX	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SJV	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SJU	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SJZ	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKC	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKB	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKP	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKO	4CL3C 4-CHLORO-3-CRESOL	ND	10.00000	µg/l	R	
SKN	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKM	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKK	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKJ	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKF	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKE	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SKD	4CL3C 4-CHLORO-3-CRESOL	ND	0.33000	µg/g	R	
SJT	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJW	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	10.00000	µg/l	R	
SJX	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJV	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJU	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJZ	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKC	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKB	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKP	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKO	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	10.00000	µg/l	R	
SKN	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKM	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKK	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKJ	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKF	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKE	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SKD	4CLPPE 4-CHLOROPHENYLPHENYL ETHER	ND	0.33000	µg/g	R	
SJT	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SJW	4MP 4-METHYLPHENOL	ND	10.00000	µg/l	R	
SJX	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SJV	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SJU	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SJZ	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKC	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKB	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKP	4MP 4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKO	4MP 4-METHYLPHENOL	ND	10.00000	µg/l	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>							
SKN	4MP	4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKM	4MP	4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKK	4MP	4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKJ	4MP	4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKF	4MP	4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKE	4MP	4-METHYLPHENOL	ND	0.33000	µg/g	R	
SKD	4MP	4-METHYLPHENOL		0.04600	µg/g	S	
SJT	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SJW	4NANIL	4-NITROANILINE	ND	50.00000	µg/l	R	
SJX	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SJV	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SJU	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SJZ	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKC	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKB	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKP	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKO	4NANIL	4-NITROANILINE	ND	50.00000	µg/l	R	
SKN	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKM	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKK	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKJ	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKF	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKE	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SKD	4NANIL	4-NITROANILINE	ND	1.70000	µg/g	R	
SJT	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SJW	4NP	4-NITROPHENOL	ND	50.00000	µg/l	R	
SJX	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SJV	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SJU	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SJZ	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKC	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKB	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKP	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKO	4NP	4-NITROPHENOL	ND	50.00000	µg/l	R	
SKN	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKM	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKK	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKJ	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKF	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKE	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKD	4NP	4-NITROPHENOL	ND	1.70000	µg/g	R	
SKP	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKO	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	6.80000	µg/l		
SKK	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKJ	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKF	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKE	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKD	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKC	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKB	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SJZ	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SJX	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SJW	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	6.80000	µg/l		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SJV	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SJU	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SJT	ABHC	ALPHA-BENZENEHEXACHLORIDE	LT	0.46000	µg/g		
SKD	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKC	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKB	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SJZ	ACLDA	ALPHA CHLORDANE	ND	5.00000	µg/g		R
SJX	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SJW	ACLDA	ALPHA CHLORDANE	ND	30.00000	µg/l		R
SJV	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SJU	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKP	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKO	ACLDA	ALPHA CHLORDANE	ND	30.00000	µg/l		R
SKK	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKJ	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKF	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SKE	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SJT	ACLDA	ALPHA CHLORDANE	ND	1.00000	µg/g		R
SJU	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SJT	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKP	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKO	AENSLF	ALPHA-ENDOSULFAN	ND	30.00000	µg/l		R
SKK	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKJ	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKF	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKE	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKD	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKC	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SKB	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SJZ	AENSLF	ALPHA-ENDOSULFAN	ND	0.50000	µg/g		R
SJX	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SJW	AENSLF	ALPHA-ENDOSULFAN	ND	30.00000	µg/l		R
SJV	AENSLF	ALPHA-ENDOSULFAN	ND	1.00000	µg/g		R
SJU	ALDRN	ALDRIN	LT	0.29000	µg/g		
SJT	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKF	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKE	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKD	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKC	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKB	ALDRN	ALDRIN	LT	0.29000	µg/g		
SJZ	ALDRN	ALDRIN	LT	0.29000	µg/g		
SJX	ALDRN	ALDRIN	LT	0.29000	µg/g		
SJW	ALDRN	ALDRIN	LT	12.00000	µg/l		
SKP	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKO	ALDRN	ALDRIN	LT	12.00000	µg/l		
SKK	ALDRN	ALDRIN	LT	0.29000	µg/g		
SKJ	ALDRN	ALDRIN	LT	0.29000	µg/g		
SJV	ALDRN	ALDRIN	LT	0.29000	µg/g		
SJT	ANAPN	ACENEPHTHENE	LT	0.41000	µg/g		
SJW	ANAPN	ACENEPHTHENE	LT	14.00000	µg/l		
SJZ	ANAPN	ACENEPHTHENE	LT	0.41000	µg/g		
SKC	ANAPN	ACENEPHTHENE	LT	0.41000	µg/g		
SKE	ANAPN	ACENEPHTHENE	LT	0.41000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SKD	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKP	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKO	ANAPN ACENEPHTHENE	LT	14.00000	µg/l		
SKN	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKM	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKK	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKJ	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKF	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SKB	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SJX	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SJV	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SJU	ANAPN ACENEPHTHENE	LT	0.41000	µg/g		
SJT	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SJW	ANAPY ACENAPHTHYLENE	LT	19.00000	µg/l		
SJZ	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKC	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKE	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKD	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKP	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKO	ANAPY ACENAPHTHYLENE	LT	19.00000	µg/l		
SKN	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKM	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKK	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKJ	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKF	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SKB	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SJX	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SJV	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SJU	ANAPY ACENAPHTHYLENE	LT	0.46000	µg/g		
SJT	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SJW	ANTRC ANTHRACENE	LT	20.00000	µg/l		
SJZ	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKC	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKE	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKD	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKP	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKO	ANTRC ANTHRACENE	LT	20.00000	µg/l		
SKN	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKM	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKK	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKJ	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKF	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SKB	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SJX	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SJV	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SJU	ANTRC ANTHRACENE	LT	0.54000	µg/g		
SJT	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g	R	
SJW	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	10.00000	µg/l	R	
SJX	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g	R	
SJV	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g	R	
SJU	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g	R	
SJZ	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g	R	
SKC	B2CEX BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKB	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKP	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKO	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	10.00000	µg/l		R
SKN	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKM	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKK	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKJ	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKF	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKE	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SKD	B2CEX	BIS (2-CHLOROETHOXY) METHANE	ND	0.33000	µg/g		R
SJT	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SJW	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	10.00000	µg/l		R
SJX	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SJV	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SJU	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SJZ	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKC	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKB	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKP	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKO	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	10.00000	µg/l		R
SKN	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKM	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKK	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKJ	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKF	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKE	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SKD	B2CIPE	BIS (2-CHLOROISOPROPYL)ETHER	ND	0.33000	µg/g		R
SJT	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SJW	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	8.10000	µg/l		
SJX	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SJV	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SJU	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SJZ	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKC	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKB	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKP	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKO	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	8.10000	µg/l		
SKN	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKM	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKK	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKJ	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKF	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKE	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SKD	B2CLEE	BIS (2-CHLOROETHYL)ETHER	LT	0.33000	µg/g		
SJT	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SJW	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	32.00000	µg/l		
SJX	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SJV	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SJU	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SJZ	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKC	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKB	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKP	B2EHP	BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SKO	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	32.00000	µg/l		
SKN	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKM	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKK	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKJ	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKF	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKE	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SKD	B2EHP BIS (2-ETHYHEXYL) PHTHALATE	LT	0.39000	µg/g		
SJT	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SJU	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SJX	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SJZ	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SJW	BAANT BENZO [A] ANTHRACENE	LT	14.00000	µg/l		
SJV	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKB	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKD	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKC	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKP	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKO	BAANT BENZO [A] ANTHRACENE	LT	14.00000	µg/l		
SKN	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKM	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKK	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKJ	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKF	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SKE	BAANT BENZO [A] ANTHRACENE	LT	0.30000	µg/g		
SJT	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SJU	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SJX	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SJZ	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SJW	BAPYR BENZO [A] PYRENE	LT	10.00000	µg/l		
SJV	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKB	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKD	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKC	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKP	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKO	BAPYR BENZO [A] PYRENE	LT	10.00000	µg/l		
SKN	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKM	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKK	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKJ	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKF	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SKE	BAPYR BENZO [A] PYRENE	LT	0.38000	µg/g		
SJT	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SJU	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SJX	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SJZ	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SJW	BBFAN BENZO [B] FLUORANTHENE	LT	23.00000	µg/l		
SJV	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKB	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKD	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKC	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKP	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKO	BBFAN BENZO [B] FLUORANTHENE	LT	23.00000	µg/l		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SKN	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKM	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKK	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKJ	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKF	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SKE	BBFAN BENZO [B] FLUORANTHENE	LT	0.36000	µg/g		
SJT	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKE	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKD	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKC	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKB	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SJZ	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SJX	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SJW	BBHC BETA-BENZENEHEXACHLORIDE	LT	4.90000	µg/l		
SJV	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKP	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKO	BBHC BETA-BENZENEHEXACHLORIDE	LT	4.90000	µg/l		
SKK	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKJ	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SKF	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SJU	BBHC BETA-BENZENEHEXACHLORIDE	LT	0.36000	µg/g		
SJT	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SJU	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SJV	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SJX	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKB	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKD	BBZP BUTYLBENZYL PHTHALATE		0.09000	µg/g	S	
SKC	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKP	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKO	BBZP BUTYLBENZYL PHTHALATE	ND	10.00000	µg/l	R	
SKN	BBZP BUTYLBENZYL PHTHALATE		0.26000	µg/g	R	
SKM	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKK	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKJ	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKF	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SKE	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SJZ	BBZP BUTYLBENZYL PHTHALATE	ND	0.33000	µg/g	R	
SJW	BBZP BUTYLBENZYL PHTHALATE	ND	10.00000	µg/l	R	
SJU	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SJT	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKF	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKE	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKD	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKC	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKB	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SJZ	BENSLF BETA-ENDOSULFAN	ND	1.00000	µg/g	R	
SJX	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SJW	BENSLF BETA-ENDOSULFAN	ND	6.00000	µg/l	R	
SKP	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKO	BENSLF BETA-ENDOSULFAN	ND	6.00000	µg/l	R	
SKK	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SKJ	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	
SJV	BENSLF BETA-ENDOSULFAN	ND	0.20000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SJT	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SJW	BENZO	BENZOIC ACID	ND	50.00000	µg/l	R	
SJZ	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKC	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKE	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKD	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKP	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKO	BENZO	BENZOIC ACID	ND	50.00000	µg/l	R	
SKN	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKM	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKK	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKJ	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKF	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SKB	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SJX	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SJV	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SJU	BENZO	BENZOIC ACID	ND	1.70000	µg/g	R	
SJT	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SJW	BGHIPY	BENZO [G,H,I] PERYLENE	LT	7.10000	µg/l		
SJZ	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKC	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKE	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKD	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKP	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKO	BGHIPY	BENZO [G,H,I] PERYLENE	LT	7.10000	µg/l		
SKN	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKM	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKK	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKJ	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKF	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SKB	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SJX	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SJV	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SJU	BGHIPY	BENZO [G,H,I] PERYLENE	LT	0.24000	µg/g		
SJT	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SJW	BKFAN	BENZO [K] FLUORANTHENE	LT	21.00000	µg/l		
SJZ	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKC	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKE	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKD	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKP	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKO	BKFAN	BENZO [K] FLUORANTHENE	LT	21.00000	µg/l		
SKN	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKM	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKK	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKJ	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKF	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SKB	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SJX	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SJV	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SJU	BKFAN	BENZO [K] FLUORANTHENE	LT	0.80000	µg/g		
SJT	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKP	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKO	BZALC	BENZYL ALCOHOL	ND	10.00000	µg/l	R	
SKN	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKM	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKK	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKJ	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKF	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKE	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKD	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKC	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SJV	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SJW	BZALC	BENZYL ALCOHOL	ND	10.00000	µg/l	R	
SJX	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKB	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SJZ	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SJU	BZALC	BENZYL ALCOHOL	ND	0.33000	µg/g	R	
SKD	C5A			0.50000	µg/g	S	
SJT	CHRY	CHRYSENE	LT	0.45000	µg/g		
SJV	CHRY	CHRYSENE	LT	0.45000	µg/g		
SJW	CHRY	CHRYSENE	LT	15.00000	µg/l		
SJU	CHRY	CHRYSENE		0.27000	µg/g	P	
SJX	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKB	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKD	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKF	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKE	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKP	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKO	CHRY	CHRYSENE	LT	15.00000	µg/l		
SKN	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKM	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKK	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKJ	CHRY	CHRYSENE	LT	0.45000	µg/g		
SKC	CHRY	CHRYSENE	LT	0.45000	µg/g		
SJZ	CHRY	CHRYSENE	LT	0.45000	µg/g		
SJT	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SJV	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SJU	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SJW	CL6BZ	HEXACHLOROBENZENE	LT	8.30000	µg/l		
SJZ	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKC	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKE	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKD	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKP	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKO	CL6BZ	HEXACHLOROBENZENE	LT	8.30000	µg/l		
SKN	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKM	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKK	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKJ	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKF	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SKB	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SJX	CL6BZ	HEXACHLOROBENZENE	LT	0.26000	µg/g		
SJT	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R	
SJV	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R	
SJU	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SJW	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	10.00000	µg/l	R
SJZ	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKC	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKE	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKD	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKP	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKO	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	10.00000	µg/l	R
SKN	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKM	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKK	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKJ	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKF	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SKB	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SJX	CL6CP	HEXACHLOROCYCLOPENTADIENE	ND	0.33000	µg/g	R
SJT	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SJV	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SJU	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SJW	CL6ET	HEXACHLOROETHANE	LT	5.10000	µg/l	
SJZ	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKC	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKE	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKD	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKP	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKO	CL6ET	HEXACHLOROETHANE	LT	5.10000	µg/l	
SKN	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKM	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKK	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKJ	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKF	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SKB	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SJX	CL6ET	HEXACHLOROETHANE	LT	0.40000	µg/g	
SJW	CLDAN	CHLORDANE	ND	30.00000	µg/l	R
SJT	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKB	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SJZ	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKP	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKO	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	5.90000	µg/l	
SKN	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKM	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKK	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKJ	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKF	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKE	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKD	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SKC	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SJU	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SJV	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SJW	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	5.90000	µg/l	
SJX	CPMS	4-CHLOROPHENYLMETHYL SULFIDE	LT	0.37000	µg/g	
SJT	CPMSO	4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g	
SJZ	CPMSO	4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g	
SKC	CPMSO	4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g	
SKB	CPMSO	4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SKP	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKO	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	6.80000	µg/l		
SKN	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKM	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKK	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKJ	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKF	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKE	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SKD	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SJX	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SJU	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SJV	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	0.27000	µg/g		
SJW	CPMSO 4-CHLOROPHENYLMETHYL SULFOXIDE	LT	6.80000	µg/l		
SJT	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SJZ	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKC	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKB	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKP	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKO	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	38.00000	µg/l		
SKN	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKM	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKK	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKJ	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKF	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKE	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SKD	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SJX	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SJU	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SJV	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	0.69000	µg/g		
SJW	CPMSO2 4-CHLOROPHENYLMETHYL SULFONE	LT	38.00000	µg/l		
SJT	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SJU	DBAHA DIBENZ [AH] ANTHRACENE		0.19000	µg/g	P	
SJW	DBAHA DIBENZ [AH] ANTHRACENE	LT	7.50000	µg/l		
SJZ	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKC	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKE	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKJ	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKF	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKP	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKO	DBAHA DIBENZ [AH] ANTHRACENE	LT	7.50000	µg/l		
SKN	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKM	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKK	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKD	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SKB	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SJX	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
SJV	DBAHA DIBENZ [AH] ANTHRACENE	LT	0.20000	µg/g		
CDX	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
CDX	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.00500	µg/g		
SJT	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SJU	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SJV	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SJW	DBHC DELTA-BENZENEHEXACHLORIDE	LT	6.40000	µg/l		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SJX	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SJZ	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKB	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKC	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKD	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKE	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKF	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKJ	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKK	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKM	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKN	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SKO	DBHC DELTA-BENZENEHEXACHLORIDE	LT	6.40000	µg/l		
SKP	DBHC DELTA-BENZENEHEXACHLORIDE	LT	0.29000	µg/g		
SJT	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SJU	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SJV	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SJW	DBZFU DIBENZOFURAN	ND	10.00000	µg/l		R
SJX	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SJZ	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKB	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKC	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKD	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKE	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKF	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKJ	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKK	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKM	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKN	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SKO	DBZFU DIBENZOFURAN	ND	10.00000	µg/l		R
SKP	DBZFU DIBENZOFURAN	ND	0.33000	µg/g		R
SJT	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SJU	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SJV	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SJW	DEP DIETHYL PHTHALATE	ND	10.00000	µg/l		R
SJX	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SJZ	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKB	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKC	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKD	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKE	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKF	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKJ	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKK	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKM	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKN	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SKO	DEP DIETHYL PHTHALATE	ND	10.00000	µg/l		R
SKP	DEP DIETHYL PHTHALATE	ND	0.33000	µg/g		R
SJT	DITH DITHIANE	LT	0.24000	µg/g		
SJU	DITH DITHIANE	LT	0.24000	µg/g		
SJV	DITH DITHIANE	LT	0.24000	µg/g		
SJW	DITH DITHIANE	LT	7.70000	µg/l		
SJX	DITH DITHIANE	LT	0.24000	µg/g		
SJZ	DITH DITHIANE	LT	0.24000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKB	DITH	DITHIANE	LT	0.24000	µg/g		
SKC	DITH	DITHIANE	LT	0.24000	µg/g		
SKD	DITH	DITHIANE	LT	0.24000	µg/g		
SKE	DITH	DITHIANE	LT	0.24000	µg/g		
SKF	DITH	DITHIANE	LT	0.24000	µg/g		
SKJ	DITH	DITHIANE	LT	0.24000	µg/g		
SKK	DITH	DITHIANE	LT	0.24000	µg/g		
SKM	DITH	DITHIANE	LT	0.24000	µg/g		
SKN	DITH	DITHIANE	LT	0.24000	µg/g		
SKO	DITH	DITHIANE	LT	7.70000	µg/l		
SKP	DITH	DITHIANE	LT	0.24000	µg/g		
SJT	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SJU	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SJV	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SJW	DLDRN	DIELDRIN	LT	11.00000	µg/l		
SJX	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SJZ	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKB	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKC	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKD	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKE	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKF	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKJ	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKK	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SKO	DLDRN	DIELDRIN	LT	11.00000	µg/l		
SKP	DLDRN	DIELDRIN	LT	0.30000	µg/g		
SJT	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SJU	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SJV	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SJW	DMP	DIMETHYL PHTHALATE	ND	10.00000	µg/l		R
SJX	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SJZ	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKB	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKC	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKD	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKE	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKF	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKJ	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKK	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKM	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKN	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SKO	DMP	DIMETHYL PHTHALATE	ND	10.00000	µg/l		R
SKP	DMP	DIMETHYL PHTHALATE	ND	0.33000	µg/g		R
SJT	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SJU	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SJV	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SJW	DNBP	DI-N-BUTYL PHTHALATE	ND	10.00000	µg/l		R
SJX	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SJZ	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKB	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKC	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKD	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKE	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKF	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKJ	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKK	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKM	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKN	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SKO	DNBP	DI-N-BUTYL PHTHALATE	ND	10.00000	µg/l		R
SKP	DNBP	DI-N-BUTYL PHTHALATE	ND	0.33000	µg/g		R
SJT	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SJU	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SJV	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SJW	DNOP	DI-N-OCTYL PHTHALATE	LT	15.00000	µg/l		
SJX	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SJZ	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKB	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKC	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKD	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKE	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKF	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKJ	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKK	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKM	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKN	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SKO	DNOP	DI-N-OCTYL PHTHALATE	LT	15.00000	µg/l		
SKP	DNOP	DI-N-OCTYL PHTHALATE	LT	0.59000	µg/g		
SJT	ENDRN	ENDRIN	LT	0.41000	µg/g		
SJU	ENDRN	ENDRIN	LT	0.41000	µg/g		
SJV	ENDRN	ENDRIN	LT	0.41000	µg/g		
SJW	ENDRN	ENDRIN	LT	6.60000	µg/l		
SJX	ENDRN	ENDRIN	LT	0.41000	µg/g		
SJZ	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKB	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKC	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKD	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKE	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKF	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKJ	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKK	ENDRN	ENDRIN	LT	0.41000	µg/g		
SKO	ENDRN	ENDRIN	LT	6.60000	µg/l		
SKP	ENDRN	ENDRIN	LT	0.41000	µg/g		
CDX	ENDRN	ENDRIN KETONE	LT	0.01600	µg/g		
CDX	ENDRN	ENDRIN KETONE	LT	0.01600	µg/g		
SJT	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SJU	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SJV	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SJW	ENDRN	ENDRIN KETONE	ND	6.00000	µg/l		R
SJX	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SJZ	ENDRN	ENDRIN KETONE	ND	1.00000	µg/g		R
SKB	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SKC	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SKD	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SKE	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SKF	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R
SKJ	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g		R

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>							
SKK	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g	R	
SKM	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g	R	
SKN	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g	R	
SKO	ENDRN	ENDRIN KETONE	ND	6.00000	µg/l	R	
SKP	ENDRN	ENDRIN KETONE	ND	0.20000	µg/g	R	
SJT	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SJU	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SJV	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SJW	ESFSO4	ENDOSULFAN SULFATE	ND	6.00000	µg/l	R	
SJX	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SJZ	ESFSO4	ENDOSULFAN SULFATE	ND	1.00000	µg/g	R	
SKB	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKC	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKD	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKE	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKF	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKJ	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKK	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SKO	ESFSO4	ENDOSULFAN SULFATE	ND	6.00000	µg/l	R	
SKP	ESFSO4	ENDOSULFAN SULFATE	ND	0.20000	µg/g	R	
SJT	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SJU	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SJV	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SJW	FANT	FLUORANTHENE	LT	20.00000	µg/l		
SJX	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SJZ	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKB	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKC	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKD	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKE	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKF	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKJ	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKK	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKM	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKN	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SKO	FANT	FLUORANTHENE	LT	20.00000	µg/l		
SKP	FANT	FLUORANTHENE	LT	0.52000	µg/g		
SJT	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SJU	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SJV	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SJW	FLRENE	FLUORENE	ND	10.00000	µg/l	R	
SJX	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SJZ	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKB	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKC	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKD	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKE	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKF	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKJ	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKK	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKM	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKN	FLRENE	FLUORENE	ND	0.33000	µg/g	R	
SKO	FLRENE	FLUORENE	ND	10.00000	µg/l	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKP	FLRENE	FLUORENE	ND	0.33000	µg/g		R
SJZ	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKB	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKC	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKD	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKE	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKF	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKJ	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKK	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SKO	GCLDA	GAMMA-CHLORDANE	ND	30.00000	µg/l		R
SKP	GCLDA	GAMMA-CHLORDANE	ND	5.00000	µg/g		R
SJT	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SJU	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SJV	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SJW	HCBD	HEXACHLOROBUTADIENE	LT	18.00000	µg/l		
SJX	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SJZ	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKB	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKC	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKD	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKE	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKF	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKJ	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKK	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKM	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKN	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SKO	HCBD	HEXACHLOROBUTADIENE	LT	18.00000	µg/l		
SKP	HCBD	HEXACHLOROBUTADIENE	LT	0.42000	µg/g		
SJT	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SJU	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SJV	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SJW	HPCL	HEPTACHLOR	LT	6.20000	µg/l		
SJX	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SJZ	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKB	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKC	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKD	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKE	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKF	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKJ	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKK	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SKO	HPCL	HEPTACHLOR	LT	6.20000	µg/l		
SKP	HPCL	HEPTACHLOR	LT	0.28000	µg/g		
SJT	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SJU	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SJV	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SJW	HPCLE	HEPTACHLOREPOXIDE	LT	7.20000	µg/l		
SJX	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SJZ	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKB	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKC	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKD	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKE	HPCLE	HEPTACHLOREPOXIDE	LT	0.36000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SKF	HPCLE HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKJ	HPCLE HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKK	HPCLE HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SKO	HPCLE HEPTACHLOREPOXIDE	LT	7.20000	µg/l		
SKP	HPCLE HEPTACHLOREPOXIDE	LT	0.36000	µg/g		
SJT	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SJU	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SJV	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SJW	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	7.20000	µg/l		
SJX	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SJZ	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKB	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKC	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKD	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKE	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKF	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKJ	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKK	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKM	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKN	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SKO	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	7.20000	µg/l		
SKP	ICDPYR INDENO [1,2,3-C,D] PYRENE	LT	0.21000	µg/g		
SJT	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SJU	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SJV	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SJW	ISOPHR ISOPHORONE	ND	10.00000	µg/l	R	
SJX	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SJZ	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKB	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKC	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKD	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKE	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKF	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKJ	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKK	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKM	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKN	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SKO	ISOPHR ISOPHORONE	ND	10.00000	µg/l	R	
SKP	ISOPHR ISOPHORONE	ND	0.33000	µg/g	R	
SJT	LIN LINDANE	LT	0.43000	µg/g		
SJU	LIN LINDANE	LT	0.43000	µg/g		
SJV	LIN LINDANE	LT	0.43000	µg/g		
SJW	LIN LINDANE	LT	5.80000	µg/l		
SJX	LIN LINDANE	LT	0.43000	µg/g		
SJZ	LIN LINDANE	LT	0.43000	µg/g		
SKB	LIN LINDANE	LT	0.43000	µg/g		
SKC	LIN LINDANE	LT	0.43000	µg/g		
SKD	LIN LINDANE	LT	0.43000	µg/g		
SKE	LIN LINDANE	LT	0.43000	µg/g		
SKF	LIN LINDANE	LT	0.43000	µg/g		
SKJ	LIN LINDANE	LT	0.43000	µg/g		
SKK	LIN LINDANE	LT	0.43000	µg/g		
SKO	LIN LINDANE	LT	5.80000	µg/l		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKP	LIN	LINDANE	LT	0.43000	µg/g		
SJT	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SJU	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SJV	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SJW	MEXCL	METHOXYCHLOR	ND	30.00000	µg/l	R	
SJX	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SJZ	MEXCL	METHOXYCHLOR	ND	5.00000	µg/g	R	
SKB	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKC	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKD	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKE	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKF	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKJ	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKK	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SKO	MEXCL	METHOXYCHLOR	ND	30.00000	µg/l	R	
SKP	MEXCL	METHOXYCHLOR	ND	1.00000	µg/g	R	
SJT	MLTHN	MALATHION	LT	0.48000	µg/g		
SJU	MLTHN	MALATHION	LT	0.48000	µg/g		
SJV	MLTHN	MALATHION	LT	0.48000	µg/g		
SJW	MLTHN	MALATHION	LT	7.30000	µg/l		
SJX	MLTHN	MALATHION	LT	0.48000	µg/g		
SJZ	MLTHN	MALATHION	LT	0.48000	µg/g		
SKB	MLTHN	MALATHION	LT	0.48000	µg/g		
SKC	MLTHN	MALATHION	LT	0.48000	µg/g		
SKD	MLTHN	MALATHION	LT	0.48000	µg/g		
SKE	MLTHN	MALATHION	LT	0.48000	µg/g		
SKF	MLTHN	MALATHION	LT	0.48000	µg/g		
SKJ	MLTHN	MALATHION	LT	0.48000	µg/g		
SKK	MLTHN	MALATHION	LT	0.48000	µg/g		
SKM	MLTHN	MALATHION	LT	0.48000	µg/g		
SKN	MLTHN	MALATHION	LT	0.48000	µg/g		
SKO	MLTHN	MALATHION	LT	7.30000	µg/l		
SKP	MLTHN	MALATHION	LT	0.48000	µg/g		
SJT	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SJU	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SJV	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SJW	NAP	NAPHTHALENE	LT	17.00000	µg/l		
SJX	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SJZ	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKB	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKC	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKD	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKE	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKF	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKJ	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKK	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKM	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKN	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SKO	NAP	NAPHTHALENE	LT	17.00000	µg/l		
SKP	NAP	NAPHTHALENE	LT	0.42000	µg/g		
SJT	NB	NITROBENZENE	ND	0.33000	µg/g	R	
SJU	NB	NITROBENZENE	ND	0.33000	µg/g	R	
SJV	NB	NITROBENZENE	ND	0.33000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SJW	NB NITROBENZENE	ND	10.00000	µg/l	R	
SJX	NB NITROBENZENE	ND	0.33000	µg/g	R	
SJZ	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKB	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKC	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKD	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKE	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKF	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKJ	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKK	NB NITROBENZENE	ND	0.33000	µg/g	R	
SKO	NB NITROBENZENE	ND	10.00000	µg/l	R	
SKP	NB NITROBENZENE	ND	0.33000	µg/g	R	
SJT	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SJU	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SJV	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SJW	NDNPA NITROSO DI-N-PROPYLAMINE	LT	4.50000	µg/l		
SJX	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SJZ	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKB	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKC	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKD	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKE	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKF	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKJ	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKK	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKM	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKN	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SKO	NDNPA NITROSO DI-N-PROPYLAMINE	LT	4.50000	µg/l		
SKP	NDNPA NITROSO DI-N-PROPYLAMINE	LT	0.36000	µg/g		
SJT	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SJU	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SJV	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SJW	NNDPA N-NITROSO DIPHENYLAMINE	ND	10.00000	µg/l	R	
SJX	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SJZ	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKB	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKC	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKD	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKE	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKF	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKJ	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKK	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKM	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKN	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SKO	NNDPA N-NITROSO DIPHENYLAMINE	ND	10.00000	µg/l	R	
SKP	NNDPA N-NITROSO DIPHENYLAMINE	ND	0.33000	µg/g	R	
SJT	OXAT 1,4-OXATHIANE	LT	0.25000	µg/g		
SJU	OXAT 1,4-OXATHIANE	LT	0.25000	µg/g		
SJV	OXAT 1,4-OXATHIANE	LT	0.25000	µg/g		
SJW	OXAT 1,4-OXATHIANE	LT	9.10000	µg/l		
SJX	OXAT 1,4-OXATHIANE	LT	0.25000	µg/g		
SJZ	OXAT 1,4-OXATHIANE	LT	0.25000	µg/g		
SKB	OXAT 1,4-OXATHIANE	LT	0.25000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SKC	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKD	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKE	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKF	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKJ	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKK	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKM	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKN	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
SKO	OXAT	1,4-OXATHIANE	LT	9.10000	µg/l		
SKP	OXAT	1,4-OXATHIANE	LT	0.25000	µg/g		
CDX	PCB016	PCB 1016	LT	0.07000	µg/g		L
CED	PCB016	PCB 1016	LT	0.07000	µg/g		
CDX	PCB260	PCB 1260	LT	0.05400	µg/g		L
CED	PCB260	PCB 1260	LT	0.05400	µg/g		
SJT	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SJU	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SJV	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SJW	PCP	PENTACHLOROPHENOL	ND	50.00000	µg/l		R
SJX	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SJZ	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKB	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKC	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKD	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKE	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKF	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKJ	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKK	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKM	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKN	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SKO	PCP	PENTACHLOROPHENOL	ND	50.00000	µg/l		R
SKP	PCP	PENTACHLOROPHENOL	ND	1.70000	µg/g		R
SJT	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SJU	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SJV	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SJW	PHANT	PHENANTHRENE	LT	22.00000	µg/l		
SJX	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SJZ	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKB	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKC	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKD	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKE	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKF	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKJ	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKK	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKM	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKN	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SKO	PHANT	PHENANTHRENE	LT	22.00000	µg/l		
SKP	PHANT	PHENANTHRENE	LT	0.41000	µg/g		
SJT	PHENO	PHENOL	ND	0.33000	µg/g		R
SJU	PHENO	PHENOL	ND	0.33000	µg/g		R
SJV	PHENO	PHENOL	ND	0.33000	µg/g		R
SJW	PHENO	PHENOL	ND	10.00000	µg/l		R
SJX	PHENO	PHENOL	ND	0.33000	µg/g		R

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SJZ	PHENO	PHENOL	ND	0.33000	µg/g		R
SKB	PHENO	PHENOL	ND	0.33000	µg/g		R
SKC	PHENO	PHENOL	ND	0.33000	µg/g		R
SKD	PHENO	PHENOL	ND	0.33000	µg/g		R
SKE	PHENO	PHENOL	ND	0.33000	µg/g		R
SKF	PHENO	PHENOL	ND	0.33000	µg/g		R
SKJ	PHENO	PHENOL	ND	0.33000	µg/g		R
SKK	PHENO	PHENOL	ND	0.33000	µg/g		R
SKM	PHENO	PHENOL	ND	0.33000	µg/g		R
SKN	PHENO	PHENOL	ND	0.33000	µg/g		R
SKO	PHENO	PHENOL	ND	10.00000	µg/l		R
SKP	PHENO	PHENOL	ND	0.33000	µg/g		R
SJT	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SJU	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SJV	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SJW	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	9.70000	µg/l		
SJX	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SJZ	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKB	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKC	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKD	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKE	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKF	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKJ	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKK	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SKO	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	9.70000	µg/l		
SKP	PPDDD	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHANE	LT	0.18000	µg/g		
SJT	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SJU	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SJV	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SJW	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	9.30000	µg/l		
SJX	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SJZ	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKB	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKC	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKD	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKE	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKF	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKJ	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKK	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SKO	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	9.30000	µg/l		
SKP	PPDDE	2,2-BIS(PARA-CHLOROPHENYL)-1,1-DICHLOROETHENE	LT	0.22000	µg/g		
SJT	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SJU	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SJV	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SJW	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	7.30000	µg/l		
SJX	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SJZ	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKB	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKC	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKD	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKE	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKF	PPDDT	2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES						
SKJ	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKK	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SKO	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	7.30000	µg/l		
SKP	PPDDT 2,2-BIS(PARA-CHLOROPHENYL)-1,1,1-TRICHLOROETHANE	LT	0.41000	µg/g		
SJT	PRTHN PARATHION	LT	0.46000	µg/g		
SJU	PRTHN PARATHION	LT	0.46000	µg/g		
SJV	PRTHN PARATHION	LT	0.46000	µg/g		
SJW	PRTHN PARATHION	LT	4.70000	µg/l		
SJX	PRTHN PARATHION	LT	0.46000	µg/g		
SJZ	PRTHN PARATHION	LT	0.46000	µg/g		
SKB	PRTHN PARATHION	LT	0.46000	µg/g		
SKC	PRTHN PARATHION	LT	0.46000	µg/g		
SKD	PRTHN PARATHION	LT	0.46000	µg/g		
SKE	PRTHN PARATHION	LT	0.46000	µg/g		
SKF	PRTHN PARATHION	LT	0.46000	µg/g		
SKJ	PRTHN PARATHION	LT	0.46000	µg/g		
SKK	PRTHN PARATHION	LT	0.46000	µg/g		
SKM	PRTHN PARATHION	LT	0.46000	µg/g		
SKN	PRTHN PARATHION	LT	0.46000	µg/g		
SKO	PRTHN PARATHION	LT	4.70000	µg/l		
SKP	PRTHN PARATHION	LT	0.46000	µg/g		
SJT	PYR PYRENE	LT	0.42000	µg/g		
SJU	PYR PYRENE	LT	0.42000	µg/g		
SJV	PYR PYRENE	LT	0.42000	µg/g		
SJW	PYR PYRENE	LT	17.00000	µg/l		
SJX	PYR PYRENE	LT	0.42000	µg/g		
SJZ	PYR PYRENE	LT	0.42000	µg/g		
SKB	PYR PYRENE	LT	0.42000	µg/g		
SKC	PYR PYRENE	LT	0.42000	µg/g		
SKD	PYR PYRENE	LT	0.42000	µg/g		
SKE	PYR PYRENE	LT	0.42000	µg/g		
SKF	PYR PYRENE	LT	0.42000	µg/g		
SKJ	PYR PYRENE	LT	0.42000	µg/g		
SKK	PYR PYRENE	LT	0.42000	µg/g		
SKM	PYR PYRENE	LT	0.42000	µg/g		
SKN	PYR PYRENE	LT	0.42000	µg/g		
SKO	PYR PYRENE	LT	17.00000	µg/l		
SKP	PYR PYRENE	LT	0.42000	µg/g		
CDX	TXPHE TOXAPHENE	LT	0.16000	µg/g		
CDX	TXPHE TOXAPHENE	LT	0.16000	µg/g		
SKE	UNK531 UNKNOWN		0.40000	µg/g	S	
SKF	UNK531 UNKNOWN		0.30000	µg/g	S	
SKN	UNK531 UNKNOWN		2.00000	µg/g	S	
SKD	UNK533 UNKNOWN		5.00000	µg/g	S	
SKE	UNK533 UNKNOWN		4.00000	µg/g	S	
SKF	UNK533 UNKNOWN		3.00000	µg/g	S	
SKN	UNK533 UNKNOWN		0.20000	µg/g	S	
SJT	UNK536 UNKNOWN		0.30000	µg/g	S	
SJZ	UNK539 UNKNOWN		0.20000	µg/g	S	
SKJ	UNK539 UNKNOWN		0.20000	µg/g	S	
SKK	UNK539 UNKNOWN		0.20000	µg/g	S	
SJT	UNK540 UNKNOWN		0.50000	µg/g	S	
SJX	UNK540 UNKNOWN		0.20000	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>						
SJU	UNK541 UNKNOWN		0.20000	µg/g	S	
SJV	UNK541 UNKNOWN		0.20000	µg/g		
SKK	UNK541 UNKNOWN		0.10000	µg/g	S	
SJT	UNK544 UNKNOWN		0.20000	µg/g	S	
SJX	UNK544 UNKNOWN		0.30000	µg/g		
SJZ	UNK544 UNKNOWN		0.20000	µg/g	S	
SJV	UNK545 UNKNOWN		0.20000	µg/g		
SJT	UNK548 UNKNOWN		0.30000	µg/g	S	
SJV	UNK552 UNKNOWN		0.20000	µg/g		
SJX	UNK552 UNKNOWN		0.20000	µg/g		
SJX	UNK559 UNKNOWN		0.10000	µg/g		
SJZ	UNK559 UNKNOWN		0.20000	µg/g	S	
SJV	UNK560 UNKNOWN		0.20000	µg/g		
SKC	UNK560 UNKNOWN		0.20000	µg/g	S	
SKD	UNK560 UNKNOWN		0.20000	µg/g	S	
SKP	UNK560 UNKNOWN		0.20000	µg/g	S	
SKB	UNK561 UNKNOWN		0.20000	µg/g	S	
SKD	UNK561 UNKNOWN		0.10000	µg/g	S	
SJT	UNK563 UNKNOWN		0.20000	µg/g	S	
SJV	UNK566 UNKNOWN		0.20000	µg/g		
SJT	UNK568 UNKNOWN		0.40000	µg/g	S	
SKN	UNK569 UNKNOWN		0.10000	µg/g	S	
SKC	UNK573 UNKNOWN		0.20000	µg/g	S	
SKD	UNK573 UNKNOWN		0.20000	µg/g	S	
SKJ	UNK573 UNKNOWN		0.20000	µg/g	S	
SKK	UNK573 UNKNOWN		0.20000	µg/g	S	
SKN	UNK573 UNKNOWN		0.40000	µg/g	S	
SKP	UNK573 UNKNOWN		0.20000	µg/g	S	
SKB	UNK574 UNKNOWN		0.50000	µg/g	D	
SKB	UNK574 UNKNOWN		0.10000	µg/g	S	
SKC	UNK574 UNKNOWN		0.60000	µg/g	S	
SKD	UNK574 UNKNOWN		0.20000	µg/g	D	
SKD	UNK574 UNKNOWN		0.70000	µg/g	S	
SKP	UNK574 UNKNOWN		0.50000	µg/g	S	
SJT	UNK583 UNKNOWN		0.10000	µg/g	S	
SKD	UNK585 UNKNOWN		0.20000	µg/g	D	
SKD	UNK585 UNKNOWN		0.60000	µg/g	S	
SKB	UNK586 UNKNOWN		0.30000	µg/g	S	
SKC	UNK586 UNKNOWN		0.40000	µg/g	S	
SKD	UNK586 UNKNOWN		0.20000	µg/g	S	
SKP	UNK586 UNKNOWN		0.30000	µg/g	S	
SKD	UNK590 UNKNOWN		0.30000	µg/g	S	
SKB	UNK591 UNKNOWN		0.20000	µg/g	S	
SKC	UNK591 UNKNOWN		0.20000	µg/g	S	
SKP	UNK591 UNKNOWN		0.20000	µg/g	S	
SKD	UNK594 UNKNOWN		0.20000	µg/g	S	
SJT	UNK595 UNKNOWN		0.20000	µg/g	S	
SKD	UNK595 UNKNOWN		0.10000	µg/g	S	
SKB	UNK596 UNKNOWN		0.20000	µg/g	S	
SKD	UNK596 UNKNOWN		0.50000	µg/g	S	
SKB	UNK597 UNKNOWN		0.20000	µg/g	S	
SKC	UNK597 UNKNOWN		0.20000	µg/g	S	
SKP	UNK597 UNKNOWN		0.10000	µg/g	S	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: SEMIVOLATILES</i>							
SJT	UNK598	UNKNOWN		0.40000	µg/g	S	
SJT	UNK599	UNKNOWN		0.20000	µg/g	S	
SJV	UNK599	UNKNOWN		0.20000	µg/g		
SKC	UNK599	UNKNOWN		0.20000	µg/g	S	
SKD	UNK599	UNKNOWN		0.20000	µg/g	D	
SKD	UNK599	UNKNOWN		0.30000	µg/g	S	
SKC	UNK602	UNKNOWN		0.30000	µg/g	S	
SKD	UNK602	UNKNOWN		0.20000	µg/g	S	
SJT	UNK603	UNKNOWN		0.10000	µg/g	S	
SKD	UNK604	UNKNOWN		0.40000	µg/g	S	
SJT	UNK605	UNKNOWN		1.00000	µg/g	S	
SJV	UNK605	UNKNOWN		0.20000	µg/g		
SKC	UNK605	UNKNOWN		0.20000	µg/g	S	
SKD	UNK605	UNKNOWN		0.20000	µg/g	S	
SKP	UNK605	UNKNOWN		0.20000	µg/g	S	
SJZ	UNK606	UNKNOWN		0.10000	µg/g	S	
SKB	UNK607	UNKNOWN		0.80000	µg/g	S	
SJT	UNK608	UNKNOWN		0.30000	µg/g	S	
SKD	UNK611	UNKNOWN		0.20000	µg/g	S	
SKB	UNK612	UNKNOWN		0.20000	µg/g	S	
SKC	UNK613	UNKNOWN		0.30000	µg/g	S	
SKM	UNK613	UNKNOWN		0.20000	µg/g	S	
SKP	UNK613	UNKNOWN		0.20000	µg/g	S	
SKD	UNK623	UNKNOWN		0.30000	µg/g	S	
SJT	UNK625	UNKNOWN		0.20000	µg/g	S	
SKC	UNK628	UNKNOWN		0.40000	µg/g	S	
SKP	UNK628	UNKNOWN		0.30000	µg/g	S	
SKD	UNK629	UNKNOWN		0.30000	µg/g	S	
SKP	UNK632	UNKNOWN		0.20000	µg/g	S	
SJV	UNK635	UNKNOWN		0.30000	µg/g		
SKD	UNK635	UNKNOWN		0.20000	µg/g	S	
SJZ	UNK636	UNKNOWN		0.30000	µg/g	S	
SKP	UNK636	UNKNOWN		0.20000	µg/g	S	
SKO	UNK637	UNKNOWN		7.00000	µg/l	S	
SJT	UNK641	UNKNOWN		0.20000	µg/g	S	
SKB	UNK641	UNKNOWN		0.50000	µg/g	S	
SKP	UNK641	UNKNOWN		0.20000	µg/g	S	
SJU	UNK643	UNKNOWN		0.30000	µg/g	S	
SKD	UNK643	UNKNOWN		0.20000	µg/g	S	
SJU	UNK646	UNKNOWN		0.90000	µg/g	S	
SJV	UNK646	UNKNOWN		0.70000	µg/g		
SJX	UNK646	UNKNOWN		0.90000	µg/g		
SJZ	UNK646	UNKNOWN		0.60000	µg/g	S	
SJV	UNK648	UNKNOWN		0.40000	µg/g		
SJT	UNK657	UNKNOWN		0.50000	µg/g	S	
SJT	UNK659	UNKNOWN		0.40000	µg/g	S	
SJT	UNK660	UNKNOWN		0.10000	µg/g	S	
SJX	UNK660	UNKNOWN		1.00000	µg/g		
SJZ	UNK660	UNKNOWN		0.80000	µg/g	S	
SJU	UNK662	UNKNOWN		1.00000	µg/g	S	
SJV	UNK662	UNKNOWN		1.00000	µg/g		
SJZ	UNK680	UNKNOWN		0.40000	µg/g	S	
SJT	UNK682	UNKNOWN		0.50000	µg/g	S	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: SEMIVOLATILES							
SJU	UNK685	UNKNOWN		0.60000	µg/g	S	
SJV	UNK685	UNKNOWN		0.60000	µg/g		
Chemical Class: UNKNOWN							
SKM	UNK625	UNKNOWN		0.20000	µg/g	S	
SKM	UNK628	UNKNOWN		0.30000	µg/g	S	
SKM	UNK632	UNKNOWN		0.20000	µg/g	S	
SKM	UNK640	UNKNOWN		0.20000	µg/g	S	
Chemical Class: VOLATILES							
VKK	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VKF	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VKE	111TCE	1,1,1-TRICHLOROETHANE	LT	4.10000	µg/l		
VJY	111TCE	1,1,1-TRICHLOROETHANE	LT	4.10000	µg/l		
VJV	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VJU	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VJT	111TCE	1,1,1-TRICHLOROETHANE	LT	4.10000	µg/l		
VJS	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VKN	111TCE	1,1,1-TRICHLOROETHANE	LT	4.10000	µg/l		
VKM	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VKL	111TCE	1,1,1-TRICHLOROETHANE	LT	0.00400	µg/g		
VJS	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VJT	112TCE	1,1,2-TRICHLOROETHANE	LT	0.63000	µg/l		
VJU	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VJY	112TCE	1,1,2-TRICHLOROETHANE	LT	0.63000	µg/l		
VJV	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VKN	112TCE	1,1,2-TRICHLOROETHANE	LT	0.63000	µg/l		
VKM	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VKL	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VKK	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VKF	112TCE	1,1,2-TRICHLOROETHANE	LT	0.02000	µg/g		
VKE	112TCE	1,1,2-TRICHLOROETHANE	LT	0.63000	µg/l		
VJU	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VJT	11DCE	1,1-DICHLOROETHYLENE	LT	1.42000	µg/l		
VKN	11DCE	1,1-DICHLOROETHYLENE	LT	1.42000	µg/l		
VKM	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VKL	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VKK	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VKF	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VKE	11DCE	1,1-DICHLOROETHYLENE	LT	1.42000	µg/l		
VJY	11DCE	1,1-DICHLOROETHYLENE	LT	1.42000	µg/l		
VJV	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VJS	11DCE	1,1-DICHLOROETHYLENE	LT	0.01900	µg/g		
VJT	11DCLE	1,1-DICHLOROETHANE	LT	1.10000	µg/l		
VJS	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		
VJU	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		
VJY	11DCLE	1,1-DICHLOROETHANE	LT	1.10000	µg/l		
VKF	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		
VKL	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		
VKK	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		
VKN	11DCLE	1,1-DICHLOROETHANE	LT	1.10000	µg/l		
VKM	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES							
VKE	11DCLE	1,1-DICHLOROETHANE	LT	1.10000	µg/l		
VJV	11DCLE	1,1-DICHLOROETHANE	LT	0.00200	µg/g		
VKK	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VKF	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VKN	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	1.10000	µg/l		
VKM	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VKL	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VJT	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	1.10000	µg/l		
VJV	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VJY	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	1.10000	µg/l		
VKE	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	1.10000	µg/l		
VJU	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VJS	12DCE	1,2-DICHLOROETHYLENES (CIS AND TRANS ISOMERS)	LT	0.00200	µg/g		
VKN	12DCLB	1,2-DICHLOROBENZENE	LT	9.70000	µg/l		
VKM	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VKL	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VKK	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VKF	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VKE	12DCLB	1,2-DICHLOROBENZENE	LT	9.70000	µg/l		
VJY	12DCLB	1,2-DICHLOROBENZENE	LT	9.70000	µg/l		
VJV	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VJU	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VJT	12DCLB	1,2-DICHLOROBENZENE	LT	9.70000	µg/l		
VJS	12DCLB	1,2-DICHLOROBENZENE	LT	0.00100	µg/g		
VKK	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VKF	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VKE	12DCLE	1,2-DICHLOROETHANE	LT	7.60000	µg/l		
VJY	12DCLE	1,2-DICHLOROETHANE	LT	7.60000	µg/l		
VJV	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VJU	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VJT	12DCLE	1,2-DICHLOROETHANE	LT	7.60000	µg/l		
VJS	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VKN	12DCLE	1,2-DICHLOROETHANE	LT	7.60000	µg/l		
VKM	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VKL	12DCLE	1,2-DICHLOROETHANE	LT	0.00300	µg/g		
VJS	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VJT	12DCLP	1,2-DICHLOROPROPANE	LT	2.80000	µg/l		
VJU	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VJY	12DCLP	1,2-DICHLOROPROPANE	LT	2.80000	µg/l		
VJV	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VKN	12DCLP	1,2-DICHLOROPROPANE	LT	2.80000	µg/l		
VKM	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VKL	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VKK	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VKF	12DCLP	1,2-DICHLOROPROPANE	LT	0.00200	µg/g		
VKE	12DCLP	1,2-DICHLOROPROPANE	LT	2.80000	µg/l		
VJS	12DMB	1,2-DIMETHYLBENZENE	ND	0.00500	µg/g		R
VJU	12DMB	1,2-DIMETHYLBENZENE	ND	0.00500	µg/g		R
VJT	12DMB	1,2-DIMETHYLBENZENE	ND	5.00000	µg/l		R
VKN	12DMB	1,2-DIMETHYLBENZENE	ND	5.00000	µg/l		R
VKM	12DMB	1,2-DIMETHYLBENZENE	ND	0.00500	µg/g		R
VKL	12DMB	1,2-DIMETHYLBENZENE	ND	0.00500	µg/g		R
VKK	12DMB	1,2-DIMETHYLBENZENE	ND	0.00500	µg/g		R

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES							
VKF	12DMB	1,2-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VKE	12DMB	1,2-DIMETHYLBENZENE	ND	5.00000	µg/l	R	
VJY	12DMB	1,2-DIMETHYLBENZENE	ND	5.00000	µg/l	R	
VJV	12DMB	1,2-DIMETHYLBENZENE	ND	0.00200	µg/g	R	
VKN	13DCLB	1,3-DICHLOROBENZENE	LT	9.20000	µg/l		
VKM	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VKL	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VKK	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VKF	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VKE	13DCLB	1,3-DICHLOROBENZENE	LT	9.20000	µg/l		
VJY	13DCLB	1,3-DICHLOROBENZENE	LT	9.20000	µg/l		
VJV	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VJU	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VJT	13DCLB	1,3-DICHLOROBENZENE	LT	9.20000	µg/l		
VJS	13DCLB	1,3-DICHLOROBENZENE	LT	0.00200	µg/g		
VKK	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VKF	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VKN	13DCP	1,3-DICHLOROPROPANE	LT	3.80000	µg/l		
VKM	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VKL	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VJT	13DCP	1,3-DICHLOROPROPANE	LT	3.80000	µg/l		
VJV	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VJY	13DCP	1,3-DICHLOROPROPANE	LT	3.80000	µg/l		
VKE	13DCP	1,3-DICHLOROPROPANE	LT	3.80000	µg/l		
VJU	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VJS	13DCP	1,3-DICHLOROPROPANE	LT	0.00100	µg/g		
VKN	13DMB	1,3-DIMETHYLBENZENE	ND	5.00000	µg/l	R	
VKM	13DMB	1,3-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VKL	13DMB	1,3-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VKK	13DMB	1,3-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VKF	13DMB	1,3-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VKE	13DMB	1,3-DIMETHYLBENZENE	ND	5.00000	µg/l	R	
VJY	13DMB	1,3-DIMETHYLBENZENE	ND	5.00000	µg/l	R	
VJV	13DMB	1,3-DIMETHYLBENZENE	ND	0.00200	µg/g	R	
VJU	13DMB	1,3-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VJT	13DMB	1,3-DIMETHYLBENZENE	ND	5.00000	µg/l	R	
VJS	13DMB	1,3-DIMETHYLBENZENE	ND	0.00500	µg/g	R	
VJV	14DCLB	1,4-DICHLOROBENZENE	LT	0.00100	µg/g		
VJU	14DCLB	1,4-DICHLOROBENZENE	LT	0.00100	µg/g		
VJT	14DCLB	1,4-DICHLOROBENZENE	LT	8.10000	µg/l		
VJS	14DCLB	1,4-DICHLOROBENZENE		0.00100	µg/g	P	
VKN	14DCLB	1,4-DICHLOROBENZENE	LT	8.10000	µg/l		
VKM	14DCLB	1,4-DICHLOROBENZENE		0.00046	µg/g	P	
VKL	14DCLB	1,4-DICHLOROBENZENE		0.00100	µg/g	P	
VKK	14DCLB	1,4-DICHLOROBENZENE		0.00100	µg/g	P	
VKF	14DCLB	1,4-DICHLOROBENZENE		0.00045	µg/g	P	
VKE	14DCLB	1,4-DICHLOROBENZENE	LT	8.10000	µg/l		
VJY	14DCLB	1,4-DICHLOROBENZENE	LT	8.10000	µg/l		
VJV	2CLEVE	2-CHLOROETHYLVINYL ETHER	LT	0.04800	µg/g		
VKE	2CLEVE	2-CHLOROETHYLVINYL ETHER	LT	82.00000	µg/l		
VKK	2CLEVE	2-CHLOROETHYLVINYL ETHER	LT	0.04800	µg/g		
VKF	2CLEVE	2-CHLOROETHYLVINYL ETHER	LT	0.04800	µg/g		
VKN	2CLEVE	2-CHLOROETHYLVINYL ETHER	LT	82.00000	µg/l		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES						
VKM	2CLEVE 2-CHLOROETHYL VINYL ETHER	LT	0.04800	µg/g		
VKL	2CLEVE 2-CHLOROETHYL VINYL ETHER	LT	0.04800	µg/g		
VJY	2CLEVE 2-CHLOROETHYL VINYL ETHER	LT	82.00000	µg/l		
VJU	2CLEVE 2-CHLOROETHYL VINYL ETHER	LT	0.04800	µg/g		
VJS	2CLEVE 2-CHLOROETHYL VINYL ETHER	LT	0.04800	µg/g		
VJT	2CLEVE 2-CHLOROETHYL VINYL ETHER	LT	82.00000	µg/l		
VJT	ACET ACETONE	ND	10.00000	µg/l	R	
VJV	ACET ACETONE		0.01400	µg/g	S	
VKE	ACET ACETONE		11.00000	µg/l	S	
VKK	ACET ACETONE		0.00800	µg/g	S	
VKF	ACET ACETONE		0.01000	µg/g	S	
VKN	ACET ACETONE	ND	10.00000	µg/l	R	
VKM	ACET ACETONE	ND	0.01000	µg/g	R	
VKL	ACET ACETONE	ND	0.01000	µg/g	R	
VJY	ACET ACETONE		7.20000	µg/l	S	
VJU	ACET ACETONE		0.01300	µg/g	S	
VJS	ACET ACETONE		0.01200	µg/g	S	
VJY	BRDCL BROMODICHLOROMETHANE	LT	7.90000	µg/l		
VKF	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VKL	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VKK	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VKN	BRDCL BROMODICHLOROMETHANE	LT	7.90000	µg/l		
VKM	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VKE	BRDCL BROMODICHLOROMETHANE	LT	7.90000	µg/l		
VJV	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VJS	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VJT	BRDCL BROMODICHLOROMETHANE	LT	7.90000	µg/l		
VJU	BRDCL BROMODICHLOROMETHANE	LT	0.00300	µg/g		
VJT	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	5.00000	µg/l	R	
VKM	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	0.00500	µg/g	R	
VKL	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	0.00500	µg/g	R	
VKN	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	5.00000	µg/l	R	
VJU	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	0.00500	µg/g	R	
VKE	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	5.00000	µg/l	R	
VKF	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	0.00500	µg/g	R	
VKK	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	0.00500	µg/g	R	
VJY	C12DCE CIS-1,2-DICHLOROETHYLENE	ND	5.00000	µg/l	R	
VKK	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VKF	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VKN	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	5.00000	µg/l	R	
VKM	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VKL	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VJT	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	5.00000	µg/l	R	
VJV	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VJY	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	5.00000	µg/l	R	
VKE	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	5.00000	µg/l	R	
VJU	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VJS	C13DCP CIS-1,3-DICHLOROPROPYLENE	ND	0.00500	µg/g	R	
VKN	C2AVE ACETIC ACID VINYL ESTER	ND	10.00000	µg/l	R	
VKM	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	
VKL	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	
VKK	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	
VKF	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES						
VKE	C2AVE ACETIC ACID VINYL ESTER	ND	10.00000	µg/l	R	
VJY	C2AVE ACETIC ACID VINYL ESTER	ND	10.00000	µg/l	R	
VJV	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	
VJU	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	
VJT	C2AVE ACETIC ACID VINYL ESTER	ND	10.00000	µg/l	R	
VJS	C2AVE ACETIC ACID VINYL ESTER	ND	0.01000	µg/g	R	
VJU	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VJY	C2H3CL CHLOROETHENE	LT	0.50000	µg/l		
VKF	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VKL	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VKK	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VKN	C2H3CL CHLOROETHENE	LT	0.50000	µg/l		
VKM	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VKE	C2H3CL CHLOROETHENE	LT	0.50000	µg/l		
VJV	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VJT	C2H3CL CHLOROETHENE	LT	0.50000	µg/l		
VJS	C2H3CL CHLOROETHENE	LT	0.01500	µg/g		
VKF	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VKE	C2H5CL CHLOROETHANE	LT	2.12000	µg/l		
VKN	C2H5CL CHLOROETHANE	LT	2.12000	µg/l		
VKM	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VKL	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VKK	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VJS	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VJU	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VJV	C2H5CL CHLOROETHANE	LT	0.02700	µg/g		
VJY	C2H5CL CHLOROETHANE	LT	2.12000	µg/l		
VJT	C2H5CL CHLOROETHANE	LT	2.12000	µg/l		
VJV	C6H6 BENZENE	LT	0.00300	µg/g		
VKE	C6H6 BENZENE	LT	2.40000	µg/l		
VKK	C6H6 BENZENE	LT	0.00300	µg/g		
VKM	C6H6 BENZENE	LT	0.00300	µg/g		
VKN	C6H6 BENZENE	LT	2.40000	µg/l		
VKL	C6H6 BENZENE	LT	0.00300	µg/g		
VKF	C6H6 BENZENE	LT	0.00300	µg/g		
VJY	C6H6 BENZENE	LT	2.40000	µg/l		
VJU	C6H6 BENZENE	LT	0.00300	µg/g		
VJS	C6H6 BENZENE	LT	0.00300	µg/g		
VJT	C6H6 BENZENE	LT	2.40000	µg/l		
VJV	CCL3F TRIFLUOROCHLOROMETHANE	ND	0.00500	µg/g	R	
VJU	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VJV	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VJT	CCL4 CARBON TETRACHLORIDE	LT	3.70000	µg/l		
VJS	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VJY	CCL4 CARBON TETRACHLORIDE	LT	3.70000	µg/l		
VKF	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VKE	CCL4 CARBON TETRACHLORIDE	LT	3.70000	µg/l		
VKN	CCL4 CARBON TETRACHLORIDE	LT	3.70000	µg/l		
VKM	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VKL	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VKK	CCL4 CARBON TETRACHLORIDE	LT	0.00600	µg/g		
VJT	CH2CL2 METHYLENE CHLORIDE		7.50000	µg/l		
VJV	CH2CL2 METHYLENE CHLORIDE		0.00700	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES						
VKE	CH2CL2 METHYLENE CHLORIDE		7.20000	µg/l		
VJY	CH2CL2 METHYLENE CHLORIDE		6.60000	µg/l		
VKN	CH2CL2 METHYLENE CHLORIDE		8.00000	µg/l		
VKM	CH2CL2 METHYLENE CHLORIDE		0.01400	µg/g		
VKL	CH2CL2 METHYLENE CHLORIDE		0.00800	µg/g		
VKK	CH2CL2 METHYLENE CHLORIDE		0.00800	µg/g		
VKF	CH2CL2 METHYLENE CHLORIDE		0.00700	µg/g		
VJU	CH2CL2 METHYLENE CHLORIDE		0.00600	µg/g		
VJS	CH2CL2 METHYLENE CHLORIDE		0.00800	µg/g		
VJS	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VKN	CH3BR BROMOMETHANE	ND	10.00000	µg/l		R
VKM	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VKL	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VKK	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VKF	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VKE	CH3BR BROMOMETHANE	ND	10.00000	µg/l		R
VJY	CH3BR BROMOMETHANE	ND	10.00000	µg/l		R
VJT	CH3BR BROMOMETHANE	ND	10.00000	µg/l		R
VJV	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VJU	CH3BR BROMOMETHANE	ND	0.01000	µg/g		R
VJS	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VJT	CH3CL CHLOROMETHANE	LT	1.60000	µg/l		
VJU	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VJY	CH3CL CHLOROMETHANE	LT	1.60000	µg/l		
VKF	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VKL	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VKK	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VKN	CH3CL CHLOROMETHANE	LT	1.60000	µg/l		
VKM	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VKE	CH3CL CHLOROMETHANE	LT	1.60000	µg/l		
VJV	CH3CL CHLOROMETHANE	LT	0.01700	µg/g		
VJS	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VJU	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VJY	CHBR3 BROMOFORM	LT	8.20000	µg/l		
VKF	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VKE	CHBR3 BROMOFORM	LT	8.20000	µg/l		
VKN	CHBR3 BROMOFORM	LT	8.20000	µg/l		
VKM	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VKL	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VKK	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VJV	CHBR3 BROMOFORM	LT	0.01800	µg/g		
VJT	CHBR3 BROMOFORM	LT	8.20000	µg/l		
VJS	CHCL3 CHLOROFORM	LT	0.00200	µg/g		
VJY	CHCL3 CHLOROFORM	LT	0.83000	µg/l		
VJV	CHCL3 CHLOROFORM	LT	0.00200	µg/g		
VKN	CHCL3 CHLOROFORM	LT	0.83000	µg/l		
VKM	CHCL3 CHLOROFORM	LT	0.00200	µg/g		
VKL	CHCL3 CHLOROFORM	LT	0.00200	µg/g		
VKK	CHCL3 CHLOROFORM	LT	0.00200	µg/g		
VKF	CHCL3 CHLOROFORM	LT	0.00200	µg/g		
VKE	CHCL3 CHLOROFORM	LT	0.83000	µg/l		
VJT	CHCL3 CHLOROFORM	LT	0.83000	µg/l		
VJU	CHCL3 CHLOROFORM	LT	0.00200	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES						
VJS	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VJU	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VJT	CLC6H5 MONOCHLOROBENZENE	LT	1.40000	µg/l		
VJV	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VKE	CLC6H5 MONOCHLOROBENZENE	LT	1.40000	µg/l		
VKK	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VKM	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VKL	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VKN	CLC6H5 MONOCHLOROBENZENE	LT	1.40000	µg/l		
VKF	CLC6H5 MONOCHLOROBENZENE	LT	0.00300	µg/g		
VJY	CLC6H5 MONOCHLOROBENZENE	LT	1.40000	µg/l		
VJS	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VJY	CS2 CARBON DISULFIDE	ND	5.00000	µg/l	R	
VKF	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VKL	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VKK	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VKN	CS2 CARBON DISULFIDE	ND	5.00000	µg/l	R	
VKM	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VKE	CS2 CARBON DISULFIDE	ND	5.00000	µg/l	R	
VJV	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VJT	CS2 CARBON DISULFIDE	ND	5.00000	µg/l	R	
VJU	CS2 CARBON DISULFIDE	ND	0.00500	µg/g	R	
VJS	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VJT	DBRCL DIBROMOCHLOROMETHANE	LT	6.50000	µg/l		
VJU	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VJV	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VJY	DBRCL DIBROMOCHLOROMETHANE	LT	6.50000	µg/l		
VKE	DBRCL DIBROMOCHLOROMETHANE	LT	6.50000	µg/l		
VKF	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VKK	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VKL	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VKM	DBRCL DIBROMOCHLOROMETHANE	LT	0.01400	µg/g		
VKN	DBRCL DIBROMOCHLOROMETHANE	LT	6.50000	µg/l		
VJS	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VJT	ETC6H5 ETHYLBENZENE	LT	9.30000	µg/l		
VJU	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VJV	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VJY	ETC6H5 ETHYLBENZENE	LT	9.30000	µg/l		
VKE	ETC6H5 ETHYLBENZENE	LT	9.30000	µg/l		
VKF	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VKK	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VKL	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VKM	ETC6H5 ETHYLBENZENE	LT	0.00300	µg/g		
VKN	ETC6H5 ETHYLBENZENE	LT	9.30000	µg/l		
VJS	MEC6H TOLUENE	LT	0.00800	µg/g		
VJT	MEC6H TOLUENE	LT	8.70000	µg/l		
VJU	MEC6H TOLUENE	LT	0.00800	µg/g		
VJV	MEC6H TOLUENE	LT	0.00800	µg/g		
VJY	MEC6H TOLUENE	LT	8.70000	µg/l		
VKE	MEC6H TOLUENE	LT	8.70000	µg/l		
VKF	MEC6H TOLUENE	LT	0.00800	µg/g		
VKK	MEC6H TOLUENE	LT	0.00800	µg/g		
VKL	MEC6H TOLUENE	LT	0.00800	µg/g		

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name		Meas Bool	Value	Unit Meas	Flag Code	Data Qual
Chemical Class: VOLATILES							
VKM	MEC6H	TOLUENE	LT	0.00800	µg/g		
VKN	MEC6H	TOLUENE	LT	8.70000	µg/l		
VJS	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VJT	MEK	METHYLETHYL KETONE	ND	10.00000	µg/l	R	
VJU	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VJV	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VJY	MEK	METHYLETHYL KETONE	ND	10.00000	µg/l	R	
VKE	MEK	METHYLETHYL KETONE	ND	10.00000	µg/l	R	
VKF	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VKK	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VKL	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VKM	MEK	METHYLETHYL KETONE	ND	0.01000	µg/g	R	
VKN	MEK	METHYLETHYL KETONE	ND	10.00000	µg/l	R	
VJS	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VJT	MIBK	METHYLISOBUTYL KETONE	ND	10.00000	µg/l	R	
VJU	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VJV	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VJY	MIBK	METHYLISOBUTYL KETONE	ND	10.00000	µg/l	R	
VKE	MIBK	METHYLISOBUTYL KETONE	ND	10.00000	µg/l	R	
VKF	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VKK	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VKL	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VKM	MIBK	METHYLISOBUTYL KETONE	ND	0.01000	µg/g	R	
VKN	MIBK	METHYLISOBUTYL KETONE	ND	10.00000	µg/l	R	
VJS	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VJT	MNBK	METHYL-N-BUTYL KETONE	ND	10.00000	µg/l	R	
VJU	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VJV	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VJY	MNBK	METHYL-N-BUTYL KETONE	ND	10.00000	µg/l	R	
VKE	MNBK	METHYL-N-BUTYL KETONE	ND	10.00000	µg/l	R	
VKF	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VKK	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VKL	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VKM	MNBK	METHYL-N-BUTYL KETONE	ND	0.01000	µg/g	R	
VKN	MNBK	METHYL-N-BUTYL KETONE	ND	10.00000	µg/l	R	
VJS	STYR	STYRENE	ND	0.00500	µg/g	R	
VJT	STYR	STYRENE	ND	5.00000	µg/l	R	
VJU	STYR	STYRENE	ND	0.00500	µg/g	R	
VJV	STYR	STYRENE	ND	0.00500	µg/g	R	
VJY	STYR	STYRENE	ND	5.00000	µg/l	R	
VKE	STYR	STYRENE	ND	5.00000	µg/l	R	
VKF	STYR	STYRENE	ND	0.00500	µg/g	R	
VKK	STYR	STYRENE	ND	0.00500	µg/g	R	
VKL	STYR	STYRENE	ND	0.00500	µg/g	R	
VKM	STYR	STYRENE	ND	0.00500	µg/g	R	
VKN	STYR	STYRENE	ND	5.00000	µg/l	R	
VJS	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	
VJT	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	5.00000	µg/l	R	
VJU	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	
VJV	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	
VJY	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	5.00000	µg/l	R	
VKE	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	5.00000	µg/l	R	
VKF	T13DCP	TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	

Method Blanks - Chemical Quality Control - Phase I RI data

Lot	Test Name	Meas Bool	Value	Unit Meas	Flag Code	Data Qual
<i>Chemical Class: VOLATILES</i>						
VKK	T13DCP TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	
VKL	T13DCP TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	
VKM	T13DCP TRANS-1,3-DICHLOROPROPENE	ND	0.00500	µg/g	R	
VKN	T13DCP TRANS-1,3-DICHLOROPROPENE	ND	5.00000	µg/l	R	
VJS	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VJT	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	4.70000	µg/l		
VJU	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VJV	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VJY	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	4.70000	µg/l		
VKE	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	4.70000	µg/l		
VKF	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VKK	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VKL	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VKM	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	0.00200	µg/g		
VKN	TCLEA 1,1,2,2-TETRACHLOROETHANE	LT	4.70000	µg/l		
VJS	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VJT	TCLEE TETRACHLOROETHYLENE	LT	0.50000	µg/l		
VJU	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VJV	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VJY	TCLEE TETRACHLOROETHYLENE		0.38000	µg/l	P	
VKE	TCLEE TETRACHLOROETHYLENE	LT	0.50000	µg/l		
VKF	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VKK	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VKL	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VKM	TCLEE TETRACHLOROETHYLENE	LT	0.00200	µg/g		
VKN	TCLEE TETRACHLOROETHYLENE	LT	0.50000	µg/l		
VJS	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VJT	TRCLE TRICHLOROETHYLENE	LT	0.50000	µg/l		
VJU	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VJV	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VJY	TRCLE TRICHLOROETHYLENE	LT	0.50000	µg/l		
VKE	TRCLE TRICHLOROETHYLENE	LT	0.50000	µg/l		
VKF	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VKK	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VKL	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VKM	TRCLE TRICHLOROETHYLENE	LT	0.00400	µg/g		
VKN	TRCLE TRICHLOROETHYLENE	LT	0.50000	µg/l		

APPENDIX J

DATA QUALITY ASSESSMENT RESULTS

Contents

Data Quality Assessment for:

- Old Burn Area (SWMU 6)**
- Old Burn Area (SWMU 6) Phase II**
- Chemical Range (SWMU 7)**
- Small Arms Firing Range (SWMU 8)**
- Small Arms Firing Range (SWMU 8) Phase II**
- Tire Disposal Area (SWMU 13)**
- Building 1303 Washout Pond (SWMU 22)**
- Bomb and Shell Reconditioning Building (SWMU 23)**
- Former Transformer Boxing Area (SWMU 31)**
- PCB Spill (SWMU 32)**
- Wastewater Spreading Area (SWMU 35)**
- Old Burn Staging Area (SWMU 36)**
- AED Test Range (SWMU 40)**
- AED Test Range (SWMU 40) Phase II**

Summary of Qualified Data Based on EPA Functional Guidelines



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003

SWMU 6
OLD BURN AREA

Prepared for:

RUST Environment and Infrastructure
743 Horizon Court, Suite 240
Grand Junction, Colorado 81506

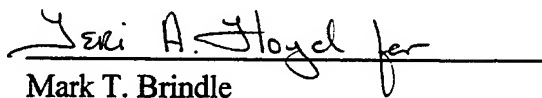
Prepared by:

EcoChem, Inc.
801 Second Avenue, Suite 1401
Seattle, Washington 98104

EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


Mark T. Brindle
Project Manager
EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 6	Selenium	ANKC	JD20 (SOIL)	Jason Ai	W. Jaime Bruton
	ICP Metals	ANUC	JS12 (SOIL)	Jason Ai	W. Jaime Bruton
	Explosives	ANDS	LW23 (SOIL)	Mark T. Brindle	Eric Strout
	Explosives	ANFY	LW23 (SOIL)	Mark T. Brindle	Eric Strout
	Explosives	AMVC	LW23 (SOIL)	Mark T. Brindle	Eric Strout

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: SWMU 6—OLD BURN AREA

Selenium

One lot of selenium analyses of soil samples using Method JD20 was reviewed. All results are acceptable for use without qualification.

Explosives

Three lots of explosives analyses of soil samples using Method LW23 were reviewed. In Lot ANDS, the 1,3,5-trinitrobenzene detection limits were qualified as estimated, (UJ) due to low and high spike accuracy deficiencies. All 1,3,5-trinitrobenzene data in Lot AMVC were rejected, (R), and are unusable for any purpose. All other data in Lot AMVC are acceptable. All data in Lot ANFY are acceptable for use without qualification.

ICP-Metals

One lot of ICP-metal analyses of soil samples using method JS12 were reviewed. All antimony detection limits were rejected because of zero antimony recovery in the natural (matrix) spikes. this indicates the possibility of false negatives. The USAEC did not flag this problem because natural spikes are not part of the USAEC QA program; however, they recommend against using Method JS12 for antimony in soil samples because of known poor recovery problems.

**DATA QUALITY ASSESSMENT
SELENIUM—GFAA ANALYSES: SOIL
METHOD: JD20
Lot No.: ANKC**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANKC were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody (COC) forms for Lot ANKC were completed properly, and all samples listed in the COC forms were analyzed. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for Lot ANKC samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. A minimum of 10% of the field ID and laboratory ID were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QC SUMMARY

No field blanks or field duplicate samples were submitted with Lot ANKC samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

For the initial calibration, the minimum number of standards were used, which met the method criterion. The linearity requirement of $r \geq 0.995$ was met. The laboratory analyzed a continuing calibration standard every ten samples as required. All percent recovery (%R) values of initial and continuing calibration verifications were within the control limit of 90% to 110%.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

Calibration blanks (ICB and CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. Preparation blanks were prepared with the digestion batch as required. No target analytes were detected in the blanks at or above the reporting limits.

4.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

One set of MS/MSD analyses was performed on Sample OBP-94-02A. The %R values were 56.0% and 60.2%, less than the Functional Guidelines (2/94) lower control limit of 75%. As MS/MSD analyses were not required in USATHAMA program, selenium results in associated samples were not qualified due to low percent recovery values; however, these same selenium results should be considered biased low. The relative percent difference (RPD) value for this MS/MSD set was 7.3%, which was within the Functional Guidelines (2/94) control limit of 35%.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Two high spike and one low spike analyses were performed with each sample lot. The %R values of both high spike analyses were 89.6% and 87.4%, within the control chart limits of 67.7% to 119.9%. The %R values of the low spike analysis was 116.3%, which was slightly greater than the control chart upper limit of 111.9%. Since these %R values were within the control limits specified in the Functional Guidelines (2/94), no action was taken.

6.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limits for selenium were reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

7.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANKC is acceptable. The laboratory noted high spike recovery values trending below the mean, low spike recovery values trending above the mean, low spike range trending above the mean, and low spike recovery values above the control chart upper limit. No qualification is recommended based on these observations.

The data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
Lot No.: ANUC**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANUC were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANUC. All Lot ANUC samples listed on the chain-of-custody were analyzed. Sample IDs were tracked from the field chain-of-custody to the transfer file printout and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample. No errors in field IDs were noted.

III. FIELD QUALITY CONTROL

One set of field duplicate samples (TBS-94-09/TBS-94-22) was analyzed and reviewed. The relative percent difference (RPD) values for this set of field duplicate samples ranged from 0.4% to 15.2%, which were within the control limit of 50%.

No field blanks were submitted with Lot ANUC samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of thallium with a percent recovery (%R) value of 120.4%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The percent recovery of the CCVs were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit, and no PB result was greater than the reporting limit. Aluminum, barium, calcium, chromium, iron, potassium, magnesium, manganese, vanadium and zinc were detected in one QC blank (BL-38668-1). Since this soil blank sample (from RMA soil, R3D-381) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANUC-1.

Discussion:

Two sets of MS/MSD analyses were performed on Samples CRS-94-01 and CRS-94-14. The antimony %R values in both MS/MSD analyses were 0% which indicates antimony analyses by ICP method were questionable. As antimony was not detected in any of the samples a possibility of false non-detects exists. The quantitation limits for antimony were rejected and not usable for any purposes. All other %R and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

One low spike and two high spike analyses were performed with this sample lot. Recovery values were evaluated based on the control chart upper and lower limits. The %R values of low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Beryllium	Acceptable	92.5% to 105.1%	Acceptable	93.7%	94.5% to 100.5%
Vanadium	Acceptable	59.0% to 120.4%	Acceptable	92.7%	92.8% to 101.4%

As these spike recovery values were close to the USAEC control limits and still within the control limit specified in Functional Guidelines (2/94), no qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits match the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANUC is acceptable. The laboratory noted high spike recovery values trending above the central line for cadmium and lead; high spike recovery values moving in a downward direction for chromium; low spike recovery values above the central line for boron, beryllium, and lead; low spike recovery values trending below the central line for copper and molybdenum; low spike recovery values moving in an upward

direction for cobalt, tin, tellurium, and thallium; and low spike recovery values moving in a downward direction for molybdenum, nickel, lead, and vanadium. No other qualification is recommended based on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANUC

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	CRS-94-01	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-02	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-03	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-04	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-05	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-06	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-07	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-08	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-09	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-10	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-11	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-12	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-13	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-14	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-15	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-16	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-17	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-18	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-29	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-30	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-31	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-32	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-09	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-12	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-15	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-18	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-21	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-22	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-03	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-06	LT 19.6 ug/g	MS/MSD %R = 0%	5

**DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: ANDS**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANDS were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANDS. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANDS. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

No field QC samples from Lot ANDS were identified on the chain-of-custody forms.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples in Lot ANDS were extracted within five days of collection and were analyzed within 23 days of extraction. The seven-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One soil method blank was associated with the samples in Lot ANDS. Target explosives compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory used Sample OBS-94-01 for MS/MSD analyses with the samples from Lot ANDS. All percent recovery values and relative percent difference values were within control limits.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANDS-1.

Discussion:

The DataChem QA status report noted that the percent recovery values for 1,3,5-trinitrobenzene were below the lower control limit in the high concentration spike analysis. The percent recovery was below the lower warning limit (but above the lower control limit) in the low concentration spike analysis. No action is suggested in the QA status report. The USAEC Control Chart Response letter accepts the lot with no qualifiers. However, a corrective action report in the data package states that the low recoveries are due to inefficient sonication, and recommends flagging all 1,3,5-trinitrobenzene results. This compound is flagged "7" on all transfer files for Lot ANDS.

Due to the inefficient sonication, all 1,3,5-trinitrobenzene results are potentially low biased. This compound was not detected. All detection limits (CRL) are estimated (UJ).

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot ANDS were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits (CRL):
ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified methods.

An examination of the DataChem QA Status Report that includes Lot ANDS revealed the following item: 1,3,5-trinitrobenzene percent recovery results in the high spike were below the lower control limit, and the percent recovery values were below the lower warning limit in the low spike.

All 1,3,5-trinitrobenzene results were qualified as estimated (UJ), due to low and high spike accuracy deficiencies.

All data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANDS-1

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-01	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-02	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-03	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-04	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-05	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-06	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-07	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-08	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-09	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-10	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-11	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-12	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-13	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	OBS-94-14	LT 9.22E-1	LS %R < LCL	6.0

**DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: ANFY**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANFY were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANFY. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANFY. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

No samples from Lot ANFY were identified as field quality control samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples in Lot ANFY were extracted within five days of collection and were analyzed within 26 days of extraction. The seven-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One soil method blank was associated with the samples in Lot ANFY. Target explosives compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory performed MS/MSD analyses with the samples from Lot ANFY.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The DataChem QA Status Report noted that the recovery values for the following compounds were above the upper control limit in the high concentration spike analysis: 1,3,5-trinitrobenzene, 2,4,6-trinitrotoluene, and RDX. The 1,3,5-Trinitrotoluene recovery value was also high in the low concentration spike analysis. The QA Status Report that the USAEC Control Chart Response letter recommend that the data for Lot ANFY be accepted with no qualifiers. As the outliers were only slightly outside of the control limits, the data are not significantly affected, and no qualifiers were assigned.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot ANFY were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

An examination of the DataChem QA Status Report that includes Lot ANFY revealed the following items: several recovery values were greater than the upper control limit, and RDX control limits were miscalculated initially, but were corrected by the laboratory by hand in the control chart section. These items do not affect the data, and no action was taken.

All data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: AMVC**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot AMVC were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot AMVC. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot AMVC. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

No samples from Lot AMVC were identified as field quality control samples on the chain-of-custody forms.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples in Lot AMVC were extracted within five days of collection and were analyzed within 23 days of extraction. The seven-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One soil method blank was associated with the samples in Lot AMVC. Target explosives compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory used Sample ARP-94-57A for MS/MSD analyses with the samples from Lot AMVC. All percent recovery values were within control limits of 70% to 130%. All relative percent difference values were less than the maximum allowable value of 20%.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table AMVC-1.

Discussion:

In Lot AMVC the low concentration standard spike recovery values for 1,3,5-trinitrobenzene were significantly less than the lower control limit. The USAEC Chemistry Branch made the recommendation that all 1,3,5-trinitrobenzene results in Lot AMVC be rejected. All 1,3,5-trinitrobenzene detection limits for Lot AMVC were rejected (R).

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot AMVC were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

An examination of the DataChem QA Status Report that includes Lot AMVC revealed the following item: 1,3,5-trinitrobenzene results in the low spike were below the lower control limit.

All 1,3,5-trinitrobenzene results were rejected (R) due to low spike precision and accuracy deficiencies.

The data that are rejected (R) are unusable for any purpose. Other data, as reported, are acceptable for use.

Qualified Data Summary Table Lot No: AMVC-1

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
1,3,5-trinitrobenzene	135TNB	R	ARP-94-57A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-57B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-57C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-58A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-58B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-58C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-59A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-59B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-59C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-60A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-60B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-60C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01D	LT 9.22E-1	LS %R < LCL	6.0



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

TEAD-N Remedial Investigation Phase II
DAAA15-90-D-0007, Task Order 0003

SWMU 6 Old Burn Area

Prepared for:

RUST Environment and Infrastructure
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Approved for Release:


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DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on the data for soil and water samples and associated laboratory quality control sample analyses.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

SWMU	Test	Lot	Method (Matrix)	Validation Level	Primary	Secondary
SWMU 6	Dioxin/Furan	AWHS	8290 (SOIL)	Tier 2	Shawna Kennedy	Eric Strout
	Dioxin/Furan	AWDA	8290 (WATER)	Tier 1	Shawna Kennedy	Eric Strout
	Dioxin/Furan	AWKZ	8290 (SOIL)	Tier 1	Shawna Kennedy	Eric Strout
	Dioxin/Furan	AWHJ	8290 (WATER)	Tier 1	Shawna Kennedy	Eric Strout
	Explosives	AVRO	LW23 (SOIL)	Tier 1	Jason Ai	Jaime Bruton
	ICP Metals	AWBP	JS12 (SOIL)	Tier 2	Bob Olsiewski	Jason Ai
	Arsenic	AWBQ	B9 (SOIL)	Tier 2	Jason Ai	Bob Olsiewski
	Selenium	AWBR	JD20 (SOIL)	Tier 2	Jason Ai	Bob Olsiewski
	Thallium	AWBS	7841 (SOIL)	Tier 2	Jason Ai	Bob Olsiewski
	Antimony	AWBT	7041 (SOIL)	Tier 2	Jason Ai	Bob Olsiewski
	Mercury	AWBU	Y9 (SOIL)	Tier 2	Jason Ai	Bob Olsiewski

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA National Functional Guidelines for Organic and Inorganic Data Review (2/94)*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

A summary table of all qualified data for SWMU-6 is included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data qualifiers are defined below. A numerical code has been added to each data qualifier to indicate the reason for the qualifier. A list of all of the reason codes is included as **APPENDIX B**. Data Quality Assessment Worksheets, Communication, and Corrective Action Records (if any) have been placed in labeled envelopes with the original data packages.

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DATA VALIDATION QUALIFIER DEFINITIONS

- | | |
|----|--|
| U | The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit. |
| R | Unreliable result. Data should not be used. Analyte may or may not be present in the sample. |
| J | Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason. |
| UJ | Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason. |

SITE DATA QUALITY SUMMARY

ICP Metals

One lot of ICP-metal analyses of soil samples using Method JS12 was reviewed. The precision and accuracy was acceptable, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. Matrix spike/matrix spike duplicate (MS/MSD) analyses were not submitted, although standard spikes (laboratory control samples) were analyzed. All chromium results in lot AWBP were estimated due to the high concentrations of iron present in the samples. Iron is an interferent for chromium during ICP analyses. No other qualifiers were issued to any of the soil samples.

Arsenic

One lot of arsenic analyses of soil samples using Method B9 was reviewed. The precision and accuracy were acceptable, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. Matrix spike/matrix spike duplicate (MS/MSD) analyses were not submitted, although standard spikes (laboratory control samples) were analyzed. Positive arsenic results were estimated in lot AWBQ due to high percent recovery values for the associated calibration verification (CCV). No other qualifiers were issued.

Antimony

One lot of antimony analyses of soil samples using USEPA Method 7041 was reviewed. The precision and accuracy was acceptable, based on the percent recovery values for the spiked analytes and the relative percent difference values for duplicate analyses. No qualifiers were issued.

Selenium

One lot of selenium analyses of soil samples using Method JD20 was reviewed. The precision and accuracy were acceptable, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. Matrix spike/matrix spike duplicate (MS/MSD) analyses were not submitted, although standard spikes (laboratory control samples) were analyzed. No qualifiers were issued.

Thallium

Two lots of thallium analyses of soil samples using USEPA Method 7841 were reviewed. The precision and accuracy were acceptable for these lots, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. All thallium detection limits were estimated (UJ) in lot AWBS due to low percent recovery values in the associated laboratory control sample analyses. No other qualifiers were issued.

Mercury

One lot of mercury analyses of soil samples using Method Y9 was reviewed. The precision and accuracy were acceptable for these lots, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. Matrix spike/matrix spike duplicate (MS/MSD) analyses were not submitted, although standard spikes (laboratory control samples) were analyzed. All mercury detection limits were estimated in lot AWBU due to a negative blank concentration in the associated initial calibration blank (ICB). No other qualifiers were issued.

Explosive Compounds

One lot of analyses of explosive compounds in soil samples using Method LW23 was reviewed. The precision and accuracy were acceptable for these lots, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. No qualifiers were issued to any of the soil samples.

Dioxin/Furan Compounds

Two lots of dioxin/furan analyses of soil samples using USEPA Method 8290 were reviewed. Accuracy and precision were acceptable, as demonstrated by the percent recovery values of the labeled compounds and spiked target analytes, and relative percent difference values from the MS/MSD and LCS/LCSD analyses. Most samples had at least one target compound qualified as not detected (U) due to contamination in the associated method blank. Two samples in lot AWKZ, and one sample in lot AWHs had compounds qualified due to low recoveries for the associated internal standards (labeled compounds). The compounds were estimated (J/UJ) due to the possible low bias for the reported value. No other qualifiers were issued to the soil samples.

Two lots of dioxin/furan analyses of water samples using USEPA Method 8290 were reviewed. Accuracy and precision were acceptable, as demonstrated by the percent recovery values of the

labeled compounds and spiked target analytes, and relative percent difference values from the MS/MSD and LCS/LCSD analyses. The water lots consisted of field blanks (equipment rinsate and field blanks) that were collected with the soil samples. Each field blank had low levels of at least one target compound. No action was taken, as it was not possible to directly associate a field blank to a given soil sample. No qualifiers were issued to any water sample.

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**TIER II DATA QUALITY ASSESSMENT
DIOXIN/FURAN ANALYSES: SOIL
METHOD: 8290
LOT: AWHS**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Results for the matrix spike/matrix spike duplicate (MS/MSD) analyses have been included although they are not required by USATHAMA 11-41 for Class 1A analyses. Transfer files were provided. DataChem QA Status Reports, USAEC Control Chart Response, and final sample results were not available at this time; however, these items may not be applicable to Method 8290 Dioxin/Furan analyses. Results for laboratory control sample (LCS) analyses were also submitted.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed on the COCs were analyzed. All forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found. The laboratory noted that Sample OBP-95-01A was received broken. This sample was canceled for dioxin analysis by the client. No action was taken.

III. FIELD QUALITY CONTROL

Data for one pair of field duplicates were submitted for review (Samples OBP-95-02C and OBP-95-01D). Relative percent difference (RPD) values were calculated for compounds detected in both replicates. Ten of the eleven calculated RPD values were greater than the QC limit of 50%. However, most of the reported concentrations were less than the method specified practical quantitation limit (PQL). A higher degree of variability is common at low concentrations. No data

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were qualified based on field duplicate precision. Field variability should be considered in data interpretation. No data for samples identified as field blanks were submitted with this lot.

IV. TECHNICAL ASSESSMENT

1.0 Sample Holding Times: ACCEPTABLE/All criteria met.

The method required an extraction holding time of 30 days from the date of sampling to the date of extraction. All samples were extracted within 16 days of sampling. The method required an analytical holding time of 45 days from the date of extraction to the date of analysis. All samples were analyzed within 11 days of extraction.

2.0 HRMS Tuning: ACCEPTABLE/All criteria met.

Perfluorokerosene (PFK) instrument tuning compound static resolving power checks were analyzed before and after each analytical sequence. The resolution for each PFK was greater than 10,000 at 10% valley (versus peak height) as required by the method. PFK lock masses were verified, and were within 5 ppm of the method-specific m/z as required.

3.0 Initial Calibration: ACCEPTABLE/All criteria met.

Initial calibrations were performed for the DB5 column. For initial calibrations, all native (unlabeled) dioxin/furan compounds (quantitated using isotope dilution) had percent relative standard deviation (%RSD) values that were within the 20% acceptance limit.

All other compounds (using the internal standard method) had %RSD values that were within the 30% acceptance limit. Ion abundance ratios, signal to noise (S/N) ratios, and relative response factor (RRF) values were verified by recalculation and are acceptable.

4.0 Calibration Verification: ACCEPTABLE/All criteria met.

The calibration verifications (CVER) were analyzed at the beginning and end of each sequence as required. The percent difference (%D) of the RRF values between the initial calibrations and CVER were within 20% and 30% for unlabeled and labeled compounds, respectively. Ion abundance ratios, signal to noise (S/N) ratios, and RRF values were verified by recalculation and are acceptable.

5.0 Isomer Specificity: ACCEPTABLE/All criteria met.

The retention time window mixture analysis for each congener (first and last eluting isomers) was submitted as required, and is acceptable. The isomer specificity test for TCDD (on the DB5 column) was submitted. The peak to valley ratio between 2378 TCDD and the closest eluting isomer was less than 25% as required by the method.

6.0 Method Blank: ACCEPTABLE/With the following exception.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE.

Discussion:

The frequency requirement of one method blank for every 20 samples, or for every extraction batch of similar matrix, was met. One compound (1234678 HpCDF) was detected at a concentration less than the PQL in the method blank. An action level was established at five times the concentration in the blank. The 1234678 HpCDF results in the samples at concentrations less than the action level were qualified as not detected (U). No other compounds were detected in the method blank.

7.0 Labeled Compound Recovery: ACCEPTABLE/With the following exceptions.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE.

Discussion:

Two types of labeled compounds are used for the dioxin/furan analyses: recovery standards, which are used to calculate the recovery values of all labeled compounds and internal standards, which are used to quantitate the concentration of the native (target) compounds.

All labeled compounds met the ion abundance ratio and retention time criteria. All labeled compounds had percent recovery (%R) values within the method QC limits of 40% to 135% with the following exceptions. Sample OBP-95-01C had 13C-2378 TCDF (30.48%), 13C-2378 TCDD (29.38%), and 13C-12378 PeCDF (35.13%) %R values less than QC limits. Associated compound results (quantitated using the outlying internal standards) were qualified as estimated for this sample. There were no positive results associated with the internal standard outliers, so the associated detection limits were estimated (UJ).

8.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/All criteria met.

Matrix spike/matrix spike duplicate (MS/MSD) analyses data were submitted by the laboratory with Lot AWHs. MS/MSD analyses were performed using Sample OBP-95-04C. All %R values are within the QC limits of 50% to 150%, indicating acceptable accuracy. All RPD values were less than both the method QC limit of 20% and project QC limit of 50%, indicating an acceptable degree of precision.

9.0 Laboratory Control Sample Analysis: ACCEPTABLE/All criteria met.

One laboratory control sample (LCS) was extracted and analyzed by the laboratory with these samples. All %R values were within the QC limits of 50% to 150%.

10.0 Compound Identification: ACCEPTABLE/All criteria met.

Compound identifications for all reported compounds were reviewed and are acceptable. For native (unlabeled) target compounds and labeled standard compounds, all ion abundance ratio and retention time criteria were met. The correct m/z (as specified in the method) were used for each compound. All native and labeled compound S/N ratios met the required acceptance limits.

11.0 Compound Quantitation and Reported Detection Limits: ACCEPTABLE/With the following discussion.

Compound quantitations were reviewed by recalculation and were determined to be performed correctly. Transcription errors were noted for several samples. The laboratory was contacted, and corrected all of the errors. No further action was taken.

Detection limit calculations using the signal to noise (S/N) ratio method (for estimated detection limits) and the estimated maximum possible concentration (EMPC, when a non-target peak is present at the target compound elution time) method were reviewed and are acceptable. All detection limits and EMPC are less than method PQL, with the exception of one to six compounds in eight of the samples (refer to the Data Validation Worksheets for outliers). As the outlying detection limits were only slightly greater than the PQL, and as Method 8290 detection limits are sample and analysis specific, no action was taken.

V. OVERALL ASSESSMENT OF THE DATA

On the basis of this evaluation, the laboratory followed the specified analytical method.

Accuracy was found to be acceptable based on the labeled standard, MS/MSD, and LCS %R values. Precision was found to be acceptable based on the low RPD values of the MS/MSD set.

Data were qualified because of blank contamination, and due to labeled compound recovery outliers.

The data, as qualified, are acceptable for use.

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**TIER 1 DATA QUALITY ASSESSMENT
DIOXIN/FURAN ANALYSES: WATER
METHOD: 8290
LOT: AWDA**

Analytical data for one water sample were reviewed using quality control (QC) criteria documented in the analytical method, *PAM 11-41* (USAEC, 1990), and *National Functional Guidelines* (U.S. EPA, 1991). The sample was collected on November 11, 1995 and was analyzed by Core Laboratories.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Tuning and Isomer Specificity
- Initial and Daily Calibration
- * Blank Analyses
- * Labeled Standards Recovery
- Laboratory Control Sample/Laboratory Control Sample Duplicate Analyses
- Compound Identification
- Reported Detection Limits

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Blank Analyses

The frequency requirement of one method blank for every 20 samples, or for every extraction batch of similar matrix, was met. Three compounds (12378 PeCDF, 12378 PeCDD, and 123678 HxCDF) were detected in the method blank. These compounds were not detected in the associated samples. No action was taken.

The only sample submitted in this lot was equipment rinse 3ER-66 (collected 11/21/95). One compound (1234678 HpCDF) was detected in this sample at 0.00000256 µg/L.

Labeled Standard Recovery

Two types of labeled compounds are used for the dioxin/furan analyses: recovery standards, which are used to calculate the recovery values of all labeled compounds, and internal standards, which are used to quantitate the concentration of the native (target) compounds.

All labeled compounds met the ion abundance ratio and retention time criteria. All labeled compounds had percent recovery (%R) values within the method QC limits of 40% to 135% with

the exception of 13C-OCDD (136.74%) in the LCSD analysis. No action was taken for outliers in QC samples.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the LCS/LCSD set. Accuracy was acceptable, as demonstrated by the LCS/LCSD and most labeled standard %R values being within control limits.

All data, as reported, are acceptable for use.

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**TIER 1 DATA QUALITY ASSESSMENT
DIOXIN/FURAN ANALYSES: SOIL
METHOD: 8290
LOT: AWKZ**

Analytical data for 36 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, *PAM 11-41* (USAEC, 1990), and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27 and 28, 1995, and were analyzed by Core Laboratories.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Tuning and Isomer Specificity
- * Initial and Daily Calibration
- * Blank Analyses
- * Labeled Standards Recovery
- Matrix Spike/Matrix Spike Duplicate Analyses
- Laboratory Control Sample/Laboratory Control Sample Duplicate Analyses
- * Compound Identification
- * Reported Detection Limits
- * Field Duplicates

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Initial and Daily Calibration

The calibration verifications (CVER) were analyzed at the beginning and end of each sequence as required. The percent difference (%D) of the relative response factor (RRF) values between the initial calibrations and CVER were within 20% and 30% (for unlabeled and labeled compounds, respectively) for the beginning CVER. However, several unlabeled compounds in the ending CVER had %D values greater than 20% (all outlying %D values were less than 25%). According to method 8290, if the CVER %D values are greater than 20% (but less than 25%), the laboratory should have quantitated the compounds associated with outlying %D values using the average of the RRF values from the beginning and ending CVER analyses. The laboratory used the initial calibration RRF values for all compound quantitations. As the %D values in the beginning CVER were acceptable, the associated data were judged ~~not~~ significantly affected, and no qualifiers were issued.

Blank Analyses

The frequency requirement of one method blank for every 20 samples, or for every extraction batch of similar matrix, was met. Several compounds were detected in the method blanks. Action levels were established at five times the concentrations in the blanks. Associated results in samples at concentrations less than the action levels were qualified as not detected (U).

Labeled Standard Recovery

Two types of labeled compounds are used for the dioxin/furan analyses: recovery standards, which are used to calculate the recovery values of all labeled compounds and internal standards, which are used to quantitate the concentration of the native (target) compounds.

All labeled compounds met the ion abundance ratio and retention time criteria. All labeled compounds had percent recovery (%R) values within the method QC limits of 40% to 135%, with the exception of several labeled compounds in Samples OBS-95-08 and OBS-95-27 (all outliers were less than 40%). Associated compound results (quantitated using the outlying internal standards) were qualified as estimated (J/UJ) for these samples because of the possible low bias.

Compound Identification

The method specifies that 2378 TCDF should be reported from analysis on a DB-225 column. The laboratory did not analyze samples for 2378 TCDF on a DB-225 column. No action was taken.

Reported Detection Limits

All detection limits and EMPC are less than method PQL values, with the exception of one to five compounds in six of the samples (refer to the Data Validation Worksheets for outliers). As the outlying detection limits were only slightly greater than the PQL values, and as Method 8290 detection limits are sample and analysis specific, no action was taken.

Field Duplicates

Data for three pairs of field duplicates were submitted for review. Relative percent difference (RPD) values were calculated for compounds detected in both replicates. All compound RPD values were less than 50% except for OCDD and OCDF in Samples OBS-95-10 and OBS-95-10FD (at 82.9% and 117.7%). No data were qualified based on field duplicate precision. Field variability should be considered in data interpretation.

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Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method with two minor exceptions. The laboratory used the average response factors from the initial calibration during compound quantitation, and the laboratory did not perform DB-225 column analysis for the tetrafurans results. These deviations should have no significant impact on the reported results, and no action was taken.

Precision was acceptable, as demonstrated by the RPD values of the MS/MSD set. Accuracy was acceptable, as demonstrated by the MS/MSD, LCS, and most labeled standard %R values being within control limits.

Data were qualified because of blank contamination and labeled standard recovery outliers.

All data, as qualified, are acceptable for use.

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**TIER 1 DATA QUALITY ASSESSMENT
DIOXIN/FURAN ANALYSES: WATER
METHOD: 8290
LOT: AWHJ**

Analytical data for three water samples were reviewed using quality control (QC) criteria documented in the analytical method, *PAM 11-41* (USAEC, 1990), and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27 and 28, 1995, and were analyzed by Core Laboratories.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Tuning and Isomer Specificity
- * Initial and Daily Calibration
- * Blank Analyses
- Labeled Standards Recovery
- Laboratory Control Sample/Laboratory Control Sample Duplicate Analyses
- Compound Identification
- Reported Detection Limits

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Initial and Daily Calibration

The calibration verifications (CVER) were analyzed at the beginning and end of each sequence as required. The percent difference (%D) of the relative response factor (RRF) values between the initial calibrations and CVER were within 20% and 30% for unlabeled and labeled compounds, respectively, with the following exceptions.

The OCDF %D value for the 12/20/95 ending CVER was greater than 20% but less than 25% (at -24%). The 123478 HxCDD %D value for the 12/21/95 ending CVER was greater than 20% but less than 25% (at 22%). According to method 8290, the laboratory should have quantitated OCDF and 123478 HxCDD results using the average of the RRF values from the beginning and ending CVER analyses. The laboratory used the initial calibration RRF values for all compound quantitations. As the %D values in the beginning CVER were acceptable, the associated data were judged not significantly affected, and no qualifiers were issued.

Blank Analyses

The frequency requirement of one method blank for every 20 samples, or for every extraction batch of similar matrix, was met. No compounds were detected in the method blank.

The only samples submitted in this lot were two equipment rinses and a field blank. Sample 3ER-68 (collected 11/28/95) contained 1234678 HpCDF at 0.00000159 $\mu\text{g/L}$. Sample 3ER-69 (collected 11/29/95) contained OCDD at 0.00000933 $\mu\text{g/L}$. Sample 3FB-P (collected 11/29/95) contained 1234678 HpCDD at 0.00000255 $\mu\text{g/L}$, and OCDD at 0.00000430 $\mu\text{g/L}$.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the LCS/LCSD set. Accuracy was acceptable, as demonstrated by the LCS/LCSD and labeled standard %R values being within control limits.

All data, as reported, are acceptable for use.

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**TIER I DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: AVRO**

Analytical data for 25 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The samples were collected from November 29 through 30, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Daily Calibration
- Blank Analyses
- * Laboratory Control Sample Analyses
- * Field Duplicate Analyses
- * Matrix Spike/Matrix Spike Duplicate Analyses
- * Compound Identification
- Chromatogram Quality
- Compound Quantitation and Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

Laboratory control sample (LCS) analyses were performed at the required frequency. Most percent recovery (%R) and relative percent difference (RPD) values were within control limits. The %R and RPD value outliers are listed in the Data Quality Assessment Worksheets. In the professional judgment of the reviewer, no qualification of the sample results on the basis of the %R values in the LCS analyses was necessary.

Field Duplicate Analyses

Two field duplicate sets (OBS-95-34/OBS-95-34FD and ARS-95-10/ARS-95-10FD) were analyzed by the laboratory. No positive results were reported in Samples OBS-95-34 or OBS-95-34FD; field duplicate RPD values were not calculable. Positive results for RDX were reported in Samples ARS-95-10 and ARS-95-10FD at concentrations (corrected for moisture) of 5.34 µg/g and 40.9 µg/g, respectively. The RPD value of RDX was 153.9%, which was greater than

the 50% control limit. Positive results for HMX and tetryl were reported for Sample ARS-95-10FD, but not for ARS-95-10. No qualifiers were assigned based on field duplicate results.

Matrix Spike/Matrix Spike Duplicate Analyses

Sample ARS-95-10FD was selected for matrix spike/matrix spike duplicate (MS/MSD) analyses. All %R values were within control limits, except for 2,4-dinitrotoluene. The %R values of 2,4-dinitrotoluene in the MS/MSD analyses were greater than the 28% to 89% control limits at 94% and 98%, respectively. In the professional judgment of the reviewer, no qualification of the sample results on the basis of 2,4-dinitrotoluene %R value was necessary. All RPD values were within control limits.

Compound Identification

Several positive results were C-flagged by the laboratory to indicate that the results were confirmed by a second column. A result for RDX in Sample ARS-95-05 was Q-flagged by the laboratory to denote that the compound was not confirmed on the second column because of matrix interference. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the RPD values of the MS/MSD and the LCS analyses being within control limits. Accuracy was acceptable, as demonstrated by the LCS and MS/MSD %R values being within control limits, except where previously noted.

All data, as reported, are acceptable for use.

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**TIER II DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
LOT: AWBP**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed on the COCs were analyzed. All forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The data for one set of field duplicate samples (OBS-95-34/OBS-95-34FD) were submitted for review. The relative percent difference (RPD) values ranged from 0.0% to 17.4%.

No field blanks were submitted with the samples of this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method-specific holding time of 180 days from the date of collection to the date of analysis.

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2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value.

The laboratory analyzed a continuing calibration verification (CCV) standard every 10 samples, as required. The percent recovery (%R) value of the CCV was within $\pm 10\%$ of the true value.

3.0 Blank Analyses: ACCEPTABLE/With the following discussion.

The data for initial and continuing calibration blanks (ICB, CCB), preparation blanks (PB), and QC blanks were evaluated for possible contamination effects. Calibration blank data were also evaluated for causing possible low bias in the associated samples. The laboratory analyzed CCBs after each CCV as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit, and no PB result was greater than the reporting limit.

Aluminum, barium, calcium, iron, potassium, magnesium, manganese, vanadium, and zinc were detected in one QC blank (BL-104889-1). Since this soil blank sample (from RMA soil, R3D-425) was unwashed soil, no qualifications of associated sample data were recommended.

4.0 Matrix Spike/Matrix Spike Duplicate Analyses: NOT SUBMITTED.

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on samples in this Lot. No action was taken on this basis.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

One low spike and two high spike analyses were performed with this sample lot. Spike %R values were evaluated based on the control chart upper and lower limits. The %R values of the low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Nickel	93.4%	97.0% to 127.2%	Acceptable	Acceptable	95.5% to 101.1%
Vanadium	Acceptable	70.7% to 122.5%	103.7%	Acceptable	95.1% to 101.5%
Copper	Acceptable	109.2% to 121.4%	Acceptable	108.0%	96.0% to 101.2%
Lead	Acceptable	96.1% to 117.9%	Acceptable	97.3%	98.5% to 103.3%

As all of the above %R values were within the *National Functional Guidelines* control limits and no qualifiers were assigned.

ORIGINAL

6.0 Duplicate Sample Analyses: ACCEPTABLE/With the following discussion.

Laboratory duplicate analyses were not performed with this sample lot; however, the relative percent difference (RPD) values between the two high spike laboratory control samples were evaluated. The copper RPD value of 8.3% was above the control limit of 4.6%; as this value is within the *National Functional Guidelines* control limits, no qualifiers were assigned. All RPD values were acceptable.

7.0 ICP Interference Check Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

The laboratory analyzed an ICP interference check sample (ICS) immediately following initial calibration and at the end of the analytical run. The laboratory used the initial calibration standard number 3 as the ICS. This standard contains aluminum, calcium, iron, magnesium, potassium and sodium at 500 mg/L, which is equivalent to the EPA solution ICSA. Standard number 3 %R values were within the Functional Guidelines criteria of 80% to 120% for each of these added metals. Additionally, all unspiked analytes were less than the absolute value of the reporting limit, except for chromium and zinc. The chromium results were judged to be affected by the concentration of iron (an interferent) present in the samples; the chromium results were qualified as estimated (J-21). The zinc results were judged to be unaffected.

8.0 ICP Serial Dilution Analyses: ACCEPTABLE/With the following discussion.

The laboratory analyzed Sample OBS-95-39 at a ten fold dilution rather at a five fold dilution. These original and diluted sample results are equivalent to the ICP serial dilution analyses, and therefore can be used to determine if interference is indicated. All serial dilution results were acceptable.

9.0 Certified Reporting Limits: ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

ORIGINAL

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No MS/MSD analyses were performed; therefore, no sample-specific accuracy evaluation was possible for this Lot. Accuracy, as measured by the %R values of the low/high spike analyses, was acceptable, except where noted. Precision, as measured by the RPD between laboratory control sample and field duplicates, was acceptable.

Qualification of chromium results was required because of high iron concentrations (an interferent for chromium) presented in the samples.

The data, as qualified, are acceptable for use.

**TIER II DATA QUALITY ASSESSMENT
ARSENIC ANALYSES: SOIL
METHOD: B9
LOT: AWBQ**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. In the raw data, sample concentrations were converted incorrectly from $\mu\text{g/L}$ to $\mu\text{g/g}$. However, since sample concentrations were reported correctly in the transfer files, no action was taken.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed were analyzed and all forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The data for one set of field duplicate samples (OBS-95-34/OBS-95-34FD) were submitted for review. Arsenic was detected in these two samples at concentrations of $7.29 \mu\text{g/g}$ and $6.33 \mu\text{g/g}$, respectively. The relative percent difference (RPD) value was 14.0%, which was less than the maximum control limit of 50%. The field precision was acceptable. No field blanks were submitted with the samples of this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method-specific holding time of 180 days from the date of collection to the date of analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following exceptions.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

Instrument calibration consisted of one blank and seven standards. The correlation coefficient was greater than the method requirement of 0.995. All initial calibration verification (ICV) standards were within $\pm 10\%$ of the true value.

The laboratory analyzed a continuing calibration verification (CCV) standard every 10 samples, as required. The percent recovery (%R) values of two CCV analyzed on 1/4/96 were greater than the upper control limit of 110% at 111.8%. Positive arsenic results associated with these two CCV were qualified as estimated (J-5B).

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

The data for initial and continuing calibration blanks (ICB, CCB), preparation blanks (PB), and QC blanks were evaluated for possible contamination effects. Calibration blank data were also evaluated for causing possible low bias in the associated samples. The laboratory analyzed CCBs after each CCV as required. A preparation blank was prepared with each digestion batch as required. Arsenic was not detected in any of the blanks at concentrations greater than or equal to the reporting limit.

4.0 Matrix Spike/Matrix Spike Duplicate Analyses: NOT PERFORMED.

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on samples in this lot. No action was taken on this basis.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

One low spike and two high spike analyses were performed with this sample lot. The low/high spike %R values were evaluated based on the control chart upper and lower limits. The low spike %R value of 122% was greater than the upper control limit of 110.4%; as this spike %R value was within the *National Functional Guidelines* control limits, no qualifiers were assigned. The high spike %R values of 97.2% and 105.6% were within the control limits.

6.0 Duplicate Sample Analyses: NOT PERFORMED.

Laboratory duplicate analyses were not performed with this sample lot; however, the RPD values between the two high spike samples were evaluated. The arsenic RPD value of 8.3% was less than the maximum control limit of 17.3%. The laboratory precision was acceptable.

ORIGINAL

7.0 Certified Reporting Limits: ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

8.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

Accuracy, as measured by the %R values of the low/high spike analyses, was acceptable.
Precision, as measured by the RPD values of high spike analyses, was acceptable.

Qualification of sample results was required because of high CCV %R values.

The data, as qualified, are acceptable for use.

DRAFT

**TIER II DATA QUALITY ASSESSMENT
SELENIUM ANALYSES: SOIL
METHOD: JD20
LOT: AWBR**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete and all samples listed were analyzed. All forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The data for one set of field duplicate samples (OBS-95-34/OBS-95-34FD) were submitted by the laboratory for review. Selenium was not detected in these two samples; therefore, the relative percent difference (RPD) value was not calculable. The field precision was acceptable.

No field blanks were submitted with the samples of this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method-specific holding time of 180 days from the date of collection to the date of analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

Instrument calibration consisted of one blank and six standards. The correlation coefficient was greater than the method requirement of 0.995. All initial calibration verification (ICV) standards were within $\pm 10\%$ of the true value.

The laboratory analyzed a continuing calibration verification (CCV) standard every 10 samples, as required. The percent recovery (%R) value of the CCV was within $\pm 10\%$ of the true value.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

The data for initial and continuing calibration blanks (ICB, CCB), preparation blanks (PB), and QC blanks were evaluated for possible contamination effects. Calibration blank data were also evaluated for causing possible low bias in the associated samples. The laboratory analyzed CCBs after each CCV as required. A preparation blank was prepared with each digestion batch, as required. Selenium was not detected in any of the blanks at concentrations greater than or equal to the reporting limit.

4.0 Matrix Spike/Matrix Spike Duplicate Analyses: NOT PERFORMED.

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on samples in this lot. No action was taken on this basis.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

One low spike and two high spike analyses were performed with this sample lot. The low/high spike %R values were evaluated based on the control chart upper and lower limits. The first high spike %R value of 111.9% was greater than the upper control limit of 104.8%. As this high spike %R value was within the *National Functional Guidelines* control limits, no qualifiers were assigned. The low spike %R value of 104.6% and second high spike %R value of 100% were within the control limits.

6.0 Duplicate Sample Analyses: NOT PERFORMED.

Laboratory duplicate analyses were not performed with this sample lot; however, the RPD values between the two high spike samples were evaluated. The selenium RPD value of 11.2% was less than the maximum control limit of 23.8%. The laboratory precision was acceptable.

7.0 Graphite Furnace QC Analyses: NOT PERFORMED.

8.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limits listed in the laboratory SOP.

9.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

Accuracy, as measured by the %R values of the low/high spike analyses, was acceptable, except where noted. Precision, as measured by the RPD values of high spike analyses, was acceptable.

The data, as reported, are acceptable for use.

ORIGINAL

**TIER II DATA QUALITY ASSESSMENT
THALLIUM ANALYSES: SOIL
METHOD: SW-7841
LOT: AWBS**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet project requirements for this data package.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot and all samples listed were analyzed. All COCs were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The data for one set of field duplicate samples (OBS-95-34/OBS-95-34FD) were submitted for review. Thallium was not detected in these two samples; therefore, the relative percent difference (RPD) value was not calculable. The field precision was acceptable.

No field blanks were submitted with the samples of this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method-specific holding time of 180 days from the date of collection to the date of analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

Instrument calibration consisted of one blank and four standards. The correlation coefficient was greater than the method requirement of 0.995. All initial calibration verification (ICV) standards were within $\pm 10\%$ of the true value.

The laboratory analyzed a continuing calibration verification (CCV) standard every 10 samples, as required. The percent recovery (%R) value of the CCV was within $\pm 10\%$ of the true value.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

The data for initial and continuing calibration blanks (ICB, CCB), preparation blanks (PB), and QC blanks were evaluated for possible contamination effects. Calibration blank data were also evaluated for causing possible low bias in the associated samples. The laboratory analyzed CCBs after each CCV as required. A preparation blank was prepared with each digestion batch as required. Thallium was not detected in any of the blanks at concentrations greater than or equal to the reporting limit.

4.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed by the laboratory on Sample OBS-95-29. The %R values of 93.2% and 89.0% and RPD value of 4.4% were within the control limits of 75% to 125% for accuracy and 35% for precision.

5.0 Laboratory Control Sample Analyses: ACCEPTABLE/With the following exception.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

One laboratory control sample (LCS) analysis was performed with this sample lot. The %R value of 65.7% was less than the lower control limit of 80%. Thallium results in this lot were qualified as estimated (UJ-10).

6.0 Duplicate Sample Analyses: ACCEPTABLE/All criteria met.

Laboratory duplicate analyses were performed on Sample OBS-95-29. Thallium was not detected in the original and duplicate samples; therefore, the RPD value was not calculable. The laboratory precision was acceptable.

7.0 Graphite Furnace QC Analyses: ACCEPTABLE/All criteria met.

The laboratory performed a post-digestion spike analysis on Sample OBS-95-39. The %R value of 104.6% was within the control limits of 85% to 115%.

8.0 Certified Reporting Limits: ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

9.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

Accuracy, as measured by the %R values of the MS/MSD and LCS analytes, was acceptable, except where noted. Precision, as measured by the RPD values of MS/MSD, laboratory duplicate and field duplicates, was acceptable.

Qualification of sample results was required because of a low LCS %R value.

The data, as qualified, are acceptable for use.

**TIER II DATA QUALITY ASSESSMENT
ANTIMONY ANALYSES: SOIL
METHOD: SW-7041
LOT: AWBT**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet project requirements for this data package.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot and all samples listed were analyzed. All forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The data for one set of field duplicate samples (OBS-95-34/OBS-95-34FD) were submitted by the laboratory for review. Antimony was not detected in these two samples; therefore, the relative percent difference (RPD) value was not calculable. The field precision was acceptable.

No field blanks were submitted with the samples of this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method-specific holding time of 180 days from the date of collection to the date of analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

Instrument calibration consisted of one blank and five standards. The correlation coefficient was greater than the method requirement of 0.995. All initial calibration verification (ICV) standards were within $\pm 10\%$ of the true value.

The laboratory analyzed a continuing calibration verification (CCV) standard every 10 samples, as required. The percent recovery (%R) value of the CCV was within $\pm 10\%$ of the true value.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

The data for initial and continuing calibration blanks (ICB, CCB), preparation blanks (PB), and QC blanks were evaluated for possible contamination effects. Calibration blank data were also evaluated for causing possible low bias in the associated samples. The laboratory analyzed CCBs after each CCV as required. A preparation blank was prepared with each digestion batch as required. Antimony was not detected in any of the blanks at concentrations greater than or equal to the reporting limit.

4.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/With the following discussion.

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on Sample OBS-95-29. The MS percent recovery (%R) value of 73.3% was slightly less than the lower control limit of 75%. Since the MSD %R value of 85.2% and RPD value of 11.5% were within the control limits of 75% to 125% for accuracy and 35% for precision, no qualifiers were assigned.

5.0 Laboratory control Sample Analyses: ACCEPTABLE/All criteria met.

One laboratory control sample (LCS) analysis was performed with this sample lot. The %R value of 111.3% was within the control limits of 80% to 120%.

6.0 Duplicate Sample Analyses: ACCEPTABLE/All criteria met.

Laboratory duplicate analyses were performed on Sample OBS-95-29. Antimony was detected in the original and duplicate samples at concentrations of 1.25 $\mu\text{g/g}$ and 1.26 $\mu\text{g/g}$, respectively. The RPD value of 0.8% was less than the maximum control limit of 35%. The laboratory precision was acceptable.

7.0 Graphite Furnace QC Analyses: ACCEPTABLE/All criteria met.

The laboratory performed a post-digestion spike analysis on Sample OBS-95-31. The %R value of 101.3% was within the control limit of 85% to 115%.

8.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

9.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

Accuracy, as measured by the %R values of the MS/MSD and LCS analytes, was acceptable, except where noted. Precision, as measured by the RPD values of MS/MSD, laboratory duplicate and field duplicates, was acceptable.

The data, as reported, are acceptable for use.

**TIER II DATA QUALITY ASSESSMENT
MERCURY ANALYSES: SOIL
METHOD: Y9
LOT: AWBU**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot, and all samples listed were analyzed. All COCs were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The data for one set of field duplicate samples (OBS-95-34/OBS-95-34FD) were submitted for review. Mercury was not detected in these two samples; therefore, the relative percent difference (RPD) value was not calculable. The field precision was acceptable.

No field blanks were submitted with the samples of this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method-specific holding time of 28 days from the date of collection to the date of analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

Instrument calibration consisted of one blank and five standards. The correlation coefficient was greater than the method requirement of 0.995. All initial calibration verification (ICV) standards were within $\pm 10\%$ of the true value.

The laboratory analyzed a continuing calibration verification (CCV) standard every 10 samples, as required. The percent recovery (%R) value of the CCV was within $\pm 10\%$ of the true value.

3.0 Blank Analyses: ACCEPTABLE/With the following exception.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

The data for initial and continuing calibration blanks (ICB, CCB), preparation blanks (PB), and QC blanks were evaluated for possible contamination effects. Calibration blank data were also evaluated for causing possible low bias in the associated samples. The laboratory analyzed CCBs after each CCV as required. A preparation blank was prepared with each digestion batch as required.

Negative blank concentration was detected in the ICB at $-0.053 \mu\text{g/g}$. Mercury was not detected in any samples at concentrations greater than or equal to the reporting limits; all associated mercury results were qualified as estimated (UJ-7). Mercury was detected in other blanks at concentrations greater than or equal to the reporting limit.

4.0 Matrix Spike/Matrix Spike Duplicate Analyses: NOT PERFORMED.

The laboratory did not perform matrix spike/matrix spike duplicate (MS/MSD) analyses on samples in this lot. No action was taken on this basis.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/All criteria met.

One low spike and two high spike analyses were performed with this sample lot. The low/high spike %R values were evaluated based on the control chart upper and lower limits. The low spike %R value of 114% and high spike %R values of 111.2% and 111.0% were within the control limits.

6.0 Duplicate Sample Analyses: NOT PERFORMED.

Laboratory duplicate analyses were not performed with this sample lot; however, the RPD values between the two high spike samples were evaluated. The mercury RPD value of 0.2% was less than the maximum control limit of 17.6%. The laboratory precision was acceptable.

7.0 Certified Reporting Limits: ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

8.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

Accuracy, as measured by the %R values of the low/high spike analyses, was acceptable.
Precision, as measured by the RPD values of high spike analyses, was acceptable.

Qualification of sample results was required because of a negative blank concentration in the ICB.

The data, as qualified, are acceptable for use.

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWKZ	OBP-95-01A	038 UC04344	SOIL	8290	78HXDF	0.00000603	B	U-7	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	234PCF	LT 0.000000980		UJ-19	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	78PCDF	LT 0.000000900		UJ-19	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	TCDD	LT 0.00000131		UJ-19	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	TCDF	LT 0.00000133		UJ-19	UGG
AWHS	OBP-95-01D	007 UC04176	SOIL	8290	678HPF	0.00000131	DJP	U-7	UGG
AWHS	OBP-95-02A	004 UC04173	SOIL	8290	678HPF	0.00000210	JP	U-7	UGG
AWHS	OBP-95-03C	010 UC04179	SOIL	8290	678HPF	0.00000239	JP	U-7	UGG
AWKZ	OBS-95-01	003 UC04261	SOIL	8290	678HPF	0.00000325	B	U-7	UGG
AWKZ	OBS-95-01	003 UC04261	SOIL	8290	OCDD	0.00000944	B	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	678HPF	0.00000679	B	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	789HPF	0.00000118	JPB	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	78HXDF	0.00000228	JPB	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	OCDD	0.0000195	B	U-7	UGG
AWKZ	OBS-95-03	005 UC04263	SOIL	8290	678HPD	0.00000346	B	U-7	UGG
AWKZ	OBS-95-03	005 UC04263	SOIL	8290	678HPF	0.00000587	B	U-7	UGG
AWKZ	OBS-95-03	005 UC04263	SOIL	8290	OCDD	0.0000266	B	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	678HPD	0.00000311	B	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	678HPF	0.00000226	B	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	78HXDF	0.000000837	JPB	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	OCDD	0.0000280	B	U-7	UGG
AWKZ	OBS-95-05	009 UC04265	SOIL	8290	678HPF	0.00000248	JPB	U-7	UGG
AWKZ	OBS-95-05	009 UC04265	SOIL	8290	TCDF	0.000000174	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	678HPF	0.000000952	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	OCDD	0.00000446	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	OCDF	0.00000299	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	TCDF	0.000000127	JPB	U-7	UGG
AWKZ	OBS-95-07	011 UC04267	SOIL	8290	678HPF	0.00000288	B	U-7	UGG
AWKZ	OBS-95-07	011 UC04267	SOIL	8290	678HXF	0.000000268	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	678HPF	0.000000997	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	OCDD	0.00000339	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	OCDF	0.00000239	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	TCDD	LT 0.000000410		UJ-19	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	TCDF	0.000000206	JPB	UJ-7,19	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	234HXF	0.000000209	JPB	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	678HPF	0.00000158	JPB	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	678HXF	0.000000154	JPB	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	OCDD	0.00000622	B	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	OCDF	0.00000363	JPB	U-7	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units	
AWKZ	OBS-95-10	014 UC04270	SOIL	8290	OCDD	0.00000688	B	U-7	UGG	✓
AWKZ	OBS-95-10	014 UC04270	SOIL	8290	OCDF	0.00000428	JPB	U-7	UGG	✓
AWKZ	OBS-95-10	014 UC04270	SOIL	8290	TCDF	0.000000169	JPB	U-7	UGG	✓
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	234HXF	0.000000276	JPB	U-7	UGG	✓
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	678HPF	0.00000241	JPB	U-7	UGG	✓
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	OCDD	0.00000789	B	U-7	UGG	✓
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	OCDF	0.00000582	B	U-7	UGG	✓
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	TCDF	0.000000233	JPB	U-7	UGG	✓
AWKZ	OBS-95-12	017 UC04273	SOIL	8290	678HPF	0.00000546	B	U-7	UGG	✓
AWKZ	OBS-95-12	017 UC04273	SOIL	8290	678HXF	0.000000301	JPB	U-7	UGG	✓
AWKZ	OBS-95-12	017 UC04273	SOIL	8290	TCDF	0.000000279	JPB	U-7	UGG	✓
AWKZ	OBS-95-13	018 UC04274	SOIL	8290	234HXF	0.000000616	JPB	U-7	UGG	✓
AWKZ	OBS-95-13	018 UC04274	SOIL	8290	678HXF	0.000000573	JPB	U-7	UGG	✓
AWKZ	OBS-95-15	020 UC04276	SOIL	8290	678HPF	0.00000121	JPB	U-7	UGG	✓
AWKZ	OBS-95-15	020 UC04276	SOIL	8290	OCDF	0.00000305	JPB	U-7	UGG	✓
AWKZ	OBS-95-15	020 UC04276	SOIL	8290	TCDF	0.000000171	JPB	U-7	UGG	✓
AWKZ	OBS-95-16	021 UC04277	SOIL	8290	678HPF	0.00000289	B	U-7	UGG	✓
AWKZ	OBS-95-16	021 UC04277	SOIL	8290	OCDF	0.00000582	B	U-7	UGG	✓
AWKZ	OBS-95-16	021 UC04277	SOIL	8290	TCDF	0.000000346	JPB	U-7	UGG	✓
AWKZ	OBS-95-18	023 UC04279	SOIL	8290	678HPF	0.00000419	B	U-7	UGG	✓
AWKZ	OBS-95-20	025 UC04281	SOIL	8290	234HXF	0.000000473	JPB	U-7	UGG	✓
AWKZ	OBS-95-20	025 UC04281	SOIL	8290	678HPF	0.00000198	JPB	U-7	UGG	✓
AWKZ	OBS-95-20	025 UC04281	SOIL	8290	OCDF	0.00000353	JPB	U-7	UGG	✓
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	678HPD	0.00000750	B	U-7	UGG	✓
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	678HPF	0.0000189	B	U-7	UGG	✓
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	78HXDF	0.00000448	B	U-7	UGG	✓
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	OCDD	0.0000575	B	U-7	UGG	✓
AWKZ	OBS-95-22	030 UC04317	SOIL	8290	78HXDF	0.00000654	B	U-7	UGG	✓
AWKZ	OBS-95-23	031 UC04318	SOIL	8290	678HPF	0.0000172	B	U-7	UGG	✓
AWKZ	OBS-95-23	031 UC04318	SOIL	8290	78HXDF	0.00000409	B	U-7	UGG	✓
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	678HPD	0.00000332	B	U-7	UGG	✓
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	678HPF	0.00000546	B	U-7	UGG	✓
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	78HXDF	0.00000193	JPB	U-7	UGG	✓
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	OCDD	0.0000205	B	U-7	UGG	✓
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	678HPD	0.00000493	B	U-7	UGG	✓
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	678HPF	0.00000611	B	U-7	UGG	✓
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	789HPF	0.000000899	JPB	U-7	UGG	✓
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	78HXDF	0.00000306	B	U-7	UGG	✓
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	OCDD	0.0000390	B	U-7	UGG	✓

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units	
AWKZ	OBS-95-26	034 UC04321	SOIL	8290	78HXDF	0.0000108	B	U-7	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	234HXF	LT 0.000000400		UJ-19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	678HPF	0.00000286	B	UJ-7,19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	678HXF	LT 0.000000280		UJ-19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	789HPF	LT 0.00000110		UJ-19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	789HXF	LT 0.000000570		UJ-19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	78HXDF	LT 0.000000410		UJ-19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	OCDD	0.0000206	B	UJ-7,19	UGG	✓
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	OCDF	0.00000935		J-19	UGG	✓
AWKZ	OBS-95-28	036 UC04323	SOIL	8290	678HPF	0.0000110	B	U-7	UGG	✓
AWKZ	OBS-95-28	036 UC04323	SOIL	8290	789HPF	0.00000249	JPB	U-7	UGG	✓
AWKZ	OBS-95-28	036 UC04323	SOIL	8290	78HXDF	0.00000337	B	U-7	UGG	✓
AWBP	OBS-95-29	005 UC04325	SOIL	JS12	CR	12.9		J-21	UGG	✓
AWBQ	OBS-95-29	005 UC04325	SOIL	B9	AS	6.86		J-5B	UGG	✓
AWBS	OBS-95-29	003 UC04325	SOIL	7841	TL	LT 1.00		UJ-10	UGG	✓
AWBU	OBS-95-29	005 UC04325	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG	✓
AWBP	OBS-95-30	006 UC04327	SOIL	JS12	CR	19.7		J-21	UGG	✓
AWBQ	OBS-95-30	006 UC04327	SOIL	B9	AS	4.58		J-5B	UGG	✓
AWBS	OBS-95-30	007 UC04327	SOIL	7841	TL	LT 1.00		UJ-10	UGG	✓
AWBU	OBS-95-30	006 UC04327	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG	✓
AWBP	OBS-95-31	007 UC04329	SOIL	JS12	CR	13.2		J-21	UGG	✓
AWBQ	OBS-95-31	007 UC04329	SOIL	B9	AS	4.98		J-5B	UGG	✓
AWBS	OBS-95-31	008 UC04329	SOIL	7841	TL	LT 1.00		UJ-10	UGG	✓
AWBU	OBS-95-31	007 UC04329	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG	✓
AWBP	OBS-95-32	008 UC04332	SOIL	JS12	CR	8.89		J-21	UGG	✓
AWBQ	OBS-95-32	008 UC04332	SOIL	B9	AS	4.54		J-5B	UGG	✓
AWBS	OBS-95-32	009 UC04332	SOIL	7841	TL	LT 1.00		UJ-10	UGG	✓
AWBU	OBS-95-32	008 UC04332	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG	✓
AWBP	OBS-95-33	009 UC04333	SOIL	JS12	CR	19.5		J-21	UGG	✓
AWBQ	OBS-95-33	009 UC04333	SOIL	B9	AS	8.75		J-5B	UGG	✓
AWBS	OBS-95-33	010 UC04333	SOIL	7841	TL	LT 1.00		UJ-10	UGG	✓
AWBU	OBS-95-33	009 UC04333	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG	✓
AWBP	OBS-95-34	010 UC04336	SOIL	JS12	CR	15.1		J-21	UGG	✓
AWBQ	OBS-95-34	010 UC04336	SOIL	B9	AS	7.22		J-5B	UGG	✓
AWBS	OBS-95-34	011 UC04336	SOIL	7841	TL	LT 1.00		UJ-10	UGG	✓
AWBU	OBS-95-34	010 UC04336	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG	✓
AWKZ	OBS-95-35	016 UC04272	SOIL	8290	678HPF	0.00000513	DB	U-7	UGG	✓
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	678HPF	0.00000181	DJPB	U-7	UGG	✓
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	678HXF	0.000000196	DJPB	U-7	UGG	✓

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	OCDF	0.00000380	DJPB	U-7	UGG
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	TCDF	0.000000619	DJPB	U-7	UGG
AWKZ	OBS-95-37	037 UC04324	SOIL	8290	678HPF	0.00000791	DB	U-7	UGG
AWKZ	OBS-95-37	037 UC04324	SOIL	8290	789HPF	0.00000153	DJPB	U-7	UGG
AWBP	OBS-95-38	011 UC04337	SOIL	JS12	CR	17.7	D	J-21	UGG
AWBQ	OBS-95-38	011 UC04337	SOIL	B9	AS	6.27	D	J-5B	UGG
AWBS	OBS-95-38	012 UC04337	SOIL	7841	TL	LT 1.00	D	UJ-10	UGG
AWBU	OBS-95-38	011 UC04337	SOIL	Y9	HG	LT 0.0500	D	UJ-7	UGG
AWBP	OBS-95-39	014 UC04343	SOIL	JS12	CR	16.9		J-21	UGG
AWBQ	OBS-95-39	014 UC04343	SOIL	B9	AS	5.57		J-5B	UGG
AWBS	OBS-95-39	015 UC04343	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-39	014 UC04343	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-40	012 UC04339	SOIL	JS12	CR	19.1		J-21	UGG
AWBQ	OBS-95-40	012 UC04339	SOIL	B9	AS	6.00		J-5B	UGG
AWBS	OBS-95-40	013 UC04339	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-40	012 UC04339	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-41	013 UC04341	SOIL	JS12	CR	17.1		J-21	UGG
AWBQ	OBS-95-41	013 UC04341	SOIL	B9	AS	5.90		J-5B	UGG
AWBS	OBS-95-41	014 UC04341	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-41	013 UC04341	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG

**DATA QUALIFIER SUMMARY TABLE
FOR BACKGROUND AND FIELD BLANK SAMPLES**

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVZD	3ER-67	005 UC04285	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3ER-68	006 UC04286	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3ER-69	007 UC04349	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3FB-P	008 UC04353	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	678HPD	0.00000655	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	678HPF	0.0000221	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	78HXDF	0.00000762	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	OCDD	0.0000301	B	U-7	UGG
AWKZ	BKS-95-07	040 UC04346	SOIL	8290	678HPF	0.0000221	B	U-7	UGG
AWKZ	BKS-95-07	040 UC04346	SOIL	8290	78HXDF	0.00000457	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	678HPD	0.00000352	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	678HPF	0.00000511	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	OCDD	0.0000266	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	678HPD	0.00000320	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	678HPF	0.00000333	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	78HXDF	0.00000166	JPB	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	OCDD	0.0000186	B	U-7	UGG

ORIGINAL



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

**TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003**

**SWMU 8
SMALL ARMS FIRING RANGE**

Prepared for:

RUST Environment and Infrastructure
743 Horizon Court, Suite 240
Grand Junction, Colorado 81506

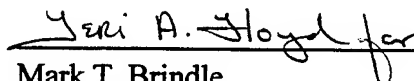
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


Mark T. Brindle
Project Manager
EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 8	Mercury	ANGK	Y9 (SOIL)	Jason Ai	W. Jaime Bruton

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.
J	Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.

UJ

Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: *SWMU 8—SMALL ARMS FIRING RANGE*

Mercury

One lot of mercury analyses of soil samples using Method Y9 was reviewed. All results are acceptable for use without qualification.

**DATA QUALITY ASSESSMENT
MERCURY—CVAA ANALYSES: SOIL
METHOD: Y9
LOT No.: ANGK**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANGK were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody (COC) forms for Lot ANGK were completed properly, and all samples listed in the COC forms were analyzed. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for Lot ANGK samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. A minimum of 10% of the field ID and laboratory ID were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QC SUMMARY

Three sets of field duplicate samples (SAS-94-04/SAS-94-21, SAS-94-09/SAS-94-22, and SAS-94-19/SAS-94-23) were analyzed and reviewed. Mercury was not detected in these samples. The relative percent difference (RPD) values were not calculable.

No field blanks were submitted with Lot ANGK samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 28 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

For the initial calibration, the minimum number of standards were used, which met the method criterion. The linearity requirement of $r \geq 0.995$ was met. The laboratory analyzed a continuing calibration standard every ten samples as required. All percent recovery (%R) values of initial and continuing calibration verifications were within the control limit of 80% to 120%.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

Calibration blanks (ICB and CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample data. Continuing calibration blanks were analyzed after each continuing calibration as required. Preparation blanks were prepared with each digestion batch as required. No target analytes were detected in the blanks at or above the reporting limits.

4.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/All criteria met.

Two sets of MS/MSD analyses were performed on Samples SAS-94-01 and SAS-94-21. The (%R) values ranged from 106.8% to 116.4%, which was within the Functional Guidelines (2/94) control limits of 75% to 125%. The (RPD) values for these two sets of MS/MSD analyses were 7% and 1%, respectively, which were within the control limit of 35%.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Two high spike and one low spike analyses were performed with each sample lot. The %R values of both high spike analyses were 109.4% and 113.0%, which were within the control chart limits of 94.9% to 128.3%. The percent recovery of the low spike analysis was 91%, which was slightly below the control chart lower limit of 102.2%. Since these percent recoveries were within the control limits specified in the Functional Guidelines (2/94), no action was taken.

6.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limits for mercury were reviewed. All reporting limits matched the certified reporting limits listed in the laboratory SOP.

7.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANGK is acceptable. The laboratory noted high spike recovery values trending below the mean and low spike recovery values below the lower control chart limit. No qualification is recommended based on these observations.

The data, as reported, are acceptable for use.



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

TEAD-N Remedial Investigation Phase II
DAAA15-90-D-0007, Task Order 0003

SWMU 8
Small Arms Firing Range

Prepared for:

RUST Environment and Infrastructure
743 Horizon Court, Suite 240
Grand Junction, Colorado 81506


Prepared by:

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EcoChem Project Number: C8909-20

February 9, 1996

Approved for Release:


Eric Strout
Sr. Project Chemist
EcoChem, Inc.

ORIGINAL

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on the data for soil and water samples and associated laboratory quality control sample analyses.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

SWMU	Test	Lot	Method (Matrix)	Validation Level	Primary	Secondary
SWMU 8	ICP Metals	AVZA	SS12 (WATER)	Tier 1	Bob Olsiewski	Jason Ai
	ICP Metals	AVXW	JS12 (SOIL)	Tier 1	Bob Olsiewski	Jason Ai
	Arsenic	AVZB	AX8 (WATER)	Tier 1	Jason Ai	Bob Olsiewski
	Arsenic	AVXX	B9 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Antimony	AVZG	7041 (WATER)	Tier 1	Jason Ai	Bob Olsiewski
	Antimony	AVYB	7041 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Antimony	AVYC	7041 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Selenium	AVZD	SD25 (WATER)	Tier 1	Jason Ai	Bob Olsiewski
	Selenium	AVXY	JD20 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Thallium	AVZF	7841 (WATER)	Tier 1	Jason Ai	Bob Olsiewski
	Thallium	AVXZ	7841 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Thallium	AVYA	7841 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Mercury	AVUQ	CC8 (WATER)	Tier 1	Jason Ai	Bob Olsiewski
	Mercury	AVYQ	Y9 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski

Data assessment was based on the QC criteria recommended in the above listed methods; the *Tooele Army Depot—North Area QC Plan*; *USEPA National Functional Guidelines for Inorganic Data Review (2/94)*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

A summary table of all qualified data for SWMU-8 is included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data qualifiers are defined below. A numerical code has been added to each data qualifier to indicate the reason for the qualifier. A list of all of the reason codes is included as **APPENDIX B**. Data Quality Assessment Worksheets, Communication, and Corrective Action Records (if any) have been placed in labeled envelopes with the original data packages.

RUST E&I: Tooele North RI Phase II Data Assessment

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.
J	Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
UJ	Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY

ICP Metals

One lot of ICP-metal analyses of soil samples using Method JS12 was reviewed. The precision and accuracy were acceptable, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. Matrix spike/matrix spike duplicate (MS/MSD) analyses were not submitted, although standard spikes (laboratory control samples) were analyzed. No qualifiers were issued to any of the soil samples.

One lot of ICP-metal analyses of water samples using Method SS12 was reviewed. The water samples consisted of field blanks and equipment rinsate blanks associated with the soil samples. Calcium was detected in the blanks. No action was taken, as it was not possible to directly associate a field QC blank with a given soil sample. The precision and accuracy were acceptable for this lot, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. No qualifiers were issued to any of the water samples.

Arsenic

One lot of arsenic analyses of soil samples using Method B9 was reviewed. The precision and accuracy were acceptable, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. No qualifiers were issued.

One lot of arsenic analyses of water samples using Method AX8 was reviewed. The water samples consisted of field blanks and equipment rinsate blanks associated with the soil samples. Arsenic was not detected in the blanks. The precision and accuracy were acceptable for this lot, based on the percent recovery values for spiked analytes and the relative percent difference

values for duplicate analyses. Matrix spike/matrix spike duplicate (MS/MSD) analyses were not submitted, although standard spikes (laboratory control samples) were analyzed. No qualifiers were issued to any of the water samples.

Antimony

Two lots of antimony analyses of soil samples using USEPA Method 7041 were reviewed. The precision and accuracy were acceptable for these lots, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. All antimony detection limits were estimated (UJ) in lots AVYB and AVYC due to low percent recovery values in the associated matrix spike/matrix spike duplicate analyses. No other qualifiers were issued.

One lot of antimony analyses of water samples using USEPA Method 7041 was reviewed. The water samples consisted of field blanks and equipment rinsate blanks associated with the soil samples. Antimony was not detected in the blanks. The precision and accuracy were acceptable for this lot, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. No qualifiers were issued to any of the water samples.

Selenium

One lot of selenium analyses of soil samples using Method JD20 was reviewed. The precision and accuracy were acceptable, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. All selenium results were estimated in lot AVXY due to low percent recovery values in the associated matrix spike/matrix spike duplicate (MS/MSD) analyses. No other qualifiers were issued.

One lot of selenium analyses of water samples using Method SD25 was reviewed. The water samples consisted of field blanks and equipment rinsate blanks associated with the soil samples. Selenium was not detected in the blanks. The precision and accuracy were acceptable for this lot, based on most of the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. No MS/MSD analyses were submitted. All selenium results were estimated in lot AVZD due to low percent recovery values in the low spike analysis. No other qualifiers were issued to any of the water samples.

Thallium

Two lots of thallium analyses of soil samples using USEPA Method 7841 were reviewed. The precision and accuracy were acceptable for these lots, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. All thallium detection limits were estimated (UJ) in lot AVYA due to low percent recovery values in the associated laboratory control sample analyses. No other qualifiers were issued.

One lot of thallium analyses of water samples using USEPA Method 7841 was reviewed. The water samples consisted of field blanks and equipment rinsate blanks associated with the soil samples. Thallium was not detected in the blanks. The precision and accuracy were acceptable

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for this lot, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. No qualifiers were issued to any of the water samples.

Mercury

One lot of mercury analyses of soil samples using Method Y9 was reviewed. The precision and accuracy were acceptable for these lots, based on the percent recovery values for most spiked analytes and the relative percent difference values for duplicate analyses. The positive mercury results in Lot AVYQ were estimated (J) due to a high percent recovery values in the associated low spike analyses. No other qualifiers were issued.

One lot of mercury analyses of water samples using Method CC8 was reviewed. The water samples consisted of field blanks and equipment rinsate blanks associated with the soil samples. The precision and accuracy were acceptable for this lot, based on the percent recovery values for spiked analytes and the relative percent difference values for duplicate analyses. No MS/MSD analyses were submitted. No qualifiers were issued to any of the water samples.

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**TIER I DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: WATER
METHOD: SS12
LOT: AVZA**

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Analytical data for 3 equipment blank samples and one field blank sample were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28 and 29, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- * Blank Analyses (Method and Field)
- * Matrix Spike Sample Analyses
- * Low Spike and High Spike Analyses
- * Duplicate Sample Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Blank Analyses (Field)

Three equipment blanks and one field blank were submitted for this lot. Calcium was detected in these blanks at concentrations ranging from 107 µg/L and 243 µg/L. Since samples associated with these equipment or field blanks were not submitted with this sample lot, no action was taken.

Matrix Spike Sample Analyses

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed for this lot. No action was taken on this basis.

Low Spike and High Spike Analyses

One low spike and two high spike analyses were performed with this sample lot. Percent recovery (%R) values were evaluated based on the control chart upper and lower limits.

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The barium %R value in the low spike sample was greater than the laboratory control limits, and the %R values for cadmium and lead in the low spike sample were less than the laboratory control limits. Only the copper %R values in the high spike samples were within the laboratory control limits; all other analyte %R values in the high spike samples were less than the laboratory control limits. Since all of these %R values were within the control limits established by *National Functional Guidelines*, no qualifiers were assigned.

Duplicate Sample Analyses

No laboratory duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the high spike analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the low spike and high spike %R values being within control limits, except where noted.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
LOT: AVXW**

Analytical data for 30 soil samples and three field duplicate samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27 and 28, 1995 and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- * Blank Analyses
- Matrix Spike Sample Analyses
- * Low Spike and High Spike Analyses
- * Duplicate Sample Analyses
- * Field Duplicate Sample Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Blank Analyses

Aluminum, barium, calcium, iron, potassium, magnesium, manganese, vanadium, and zinc were detected in one QC blank (BL-104712-1). Since this soil blank sample (from RMA soil, R3D-425) was unwashed soil, no qualifications of associated sample data were recommended.

Low Spike and High Spike Analyses

One low spike and two high spike analyses were performed with this sample lot. Percent recovery (%R) values were evaluated based on the control chart upper and lower limits.

The beryllium %R value in the laboratory control sample LCS QC104712-1 was greater than the laboratory control limits of 95.6% to 104.8% at 105.0%. The lead %R value in the low spike sample was less than the control limits of 96.1% to 117.9% at 95.3%. The beryllium %R value in the first high spike sample was greater than the control limits of 95.0% to 99.8% at 99.9%. The beryllium %R value in the second high spike sample was greater than the control limits of 95.0% to 99.8% at 100.0%. The copper %R value in the second high spike sample was greater than the

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control limits of 96.0% to 101.2% at 102%. Since all of the above %R values were within the control limits established by *National Functional Guidelines*, no qualifiers were assigned.

Duplicate Sample Analyses

No laboratory sample duplicate analyses were performed for this lot. No action was taken on this basis.

Field Duplicate Sample Analyses

The calcium relative percent difference (RPD) value (72.3%) for the field duplicate pair SAB-95-10B/SAB-95-10B FD was greater than the control limit of 50%. No qualifiers were assigned on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the QC criteria-compliant RPD values of the MS/MSD analyses. Accuracy was acceptable, as demonstrated by the MS/MSD and Low/High Spike %R values being within control limits, except where noted.

All data, as reported, are acceptable for use.

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Laboratory and Field Duplicate Report

SDG: AVXW		Associated Field Samples					
Method Group:		SAB-95-01A, SAB-95-01B, SAB-95-02A, SAB-95-02B, SAB-95-03A, SAB-95-03B, SAB-95-04A, SAB-95-04B, SAB-95-05A, SAB-95-05B, SAB-95-06A, SAB-95-06B, SAB-95-07A, SAB-95-07B, SAB-95-08A, SAB-95-08B, SAB-95-09A, SAB-95-09B, SAB-95-10A, SAB-95-10A (FD), SAB-95-10B, SAB-95-10B (FD), SAS-95-01, SAS-95-02, SAS-95-03, SAS-95-04, SAS-95-05, SAS-95-06, SAS-95-07, SAS-95-08, SAS-95-09, SAS-95-10, SAS-95-10 (FD)					
Analytical Batch ID: AVXW							
Matrix: SOIL							
Quality Control Samples	Reporting Limit	Results		Accuracy		Control Limit	Qualification Notes
		Sample	Sample Dup	RPD	Difference		
Field Duplicate Set: Samples 028 UC04251, 031 UC04254							
JS12 (UGG)							
AL	0.00	12100	15600	24.9	0.210	50.0	
BA	0.00	136	170	21.9		50.0	
BE	0.458	0.458U	0.668			+/-2*RL	
CA	0.00	24700	31100	23.2		50.0	
CO	0.00	5.36	6.12	13.2		50.0	
CR	0.00	17.6	21.6	20.4		50.0	
CU	0.00	13.4	16.2	18.9		50.0	
FE	0.00	15200	18800	20.9		50.0	
K	0.00	3080	3810	21.3		50.0	
MG	0.00	9020	11200	21.3		50.0	
MN	0.00	321	389	19.2		50.0	
NA	0.00	421	497	16.7		50.0	
NI	0.00	11.8	15.5	26.9		50.0	
PB	0.00	17.3	20.5	17.2		50.0	
V	0.00	26.5	32.5	20.5		50.0	
ZN	0.00	54.8	69.3	23.3		50.0	
Field Duplicate Set: Samples 036 UC04257, 038 UC04259							
JS12 (UGG)							
AL	0.00	11200	11800D	4.9		50.0	
BA	0.00	138	140D	1.1		50.0	
BE	0.00	0.507	0.478D	5.9		50.0	
CA	0.00	33100	34400D	3.8		50.0	
CO	0.00	4.92	5.23D	6.2		50.0	
CR	0.00	19.6	20.7D	5.6		50.0	
CU	0.00	11.9	11.8D	1.5		50.0	
FE	0.00	16400	16500D	1.0		50.0	
K	0.00	2520	2610D	3.6		50.0	

Laboratory and Field Duplicate Report

SDG: AVXW		Associated Field Samples				
Method Group:		SAB-95-01A, SAB-95-01B, SAB-95-02A, SAB-95-02B, SAB-95-03A, SAB-95-03B, SAB-95-04A, SAB-95-04B, SAB-95-05A, SAB-95-05B, SAB-95-06A, SAB-95-06B, SAB-95-07A, SAB-95-07B, SAB-95-08A, SAB-95-08B, SAB-95-09A, SAB-95-09B, SAB-95-10A, SAB-95-10A (FD), SAB-95-10B, SAB-95-10B (FD), SAS-95-01, SAS-95-02, SAS-95-03, SAS-95-04, SAS-95-05, SAS-95-06, SAS-95-07, SAS-95-08, SAS-95-09, SAS-95-10, SAS-95-10 (FD)				
Analytical Batch ID: AVXW						
Matrix: SOIL						
Field Duplicate Set: Samples 036 UC04257, 038 UC04259						
MG	0.00	9140	9500D	3.8	50.0	
MN	0.00	314	313D	0.4	50.0	
NA	0.00	426	414D	3.0	50.0	
NI	0.00	12.7	12.1D	4.8	50.0	
PB	0.00	16.1	12.7D	23.2	50.0	
V	0.00	29.8	31.4D	5.2	50.0	
ZN	0.00	52.1	54.6D	4.7	50.0	
Field Duplicate Set: Samples 037 UC04258, 039 UC04260						
JSTZ (UGG)						
AL	0.00	10400	11300D	8.3	50.0	
BA	0.00	137	145D	5.3	50.0	
BE	0.450	0.450U	0.494D	0.0437	+/-2*RL	
CA	0.00	66400	31100D	72.3*	50.0	
CO	0.00	5.30	6.87D	25.8	50.0	
CR	0.00	17.6	19.8D	11.9	50.0	
CU	0.00	10.5	11.4D	7.8	50.0	
FE	0.00	14800	15700D	6.3	50.0	
K	0.00	2490	2620D	5.1	50.0	
MG	0.00	8950	8590D	4.1	50.0	
MN	0.00	287	290D	1.2	50.0	
NA	0.00	409	435D	6.1	50.0	
NI	0.00	12.6	13.0D	2.6	50.0	
PB	0.00	14.4	14.7D	1.6	50.0	
V	0.00	26.7	28.0D	4.7	50.0	
ZN	0.00	52.7	51.9D	1.5	50.0	

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**TIER I DATA QUALITY ASSESSMENT
ARSENIC ANALYSES: WATER
METHOD: AX8
LOT: AVZB**

Analytical data for four equipment blanks were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28 and 29, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike Sample Analyses
- Low Spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike Sample Analyses

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed for this lot. No action was taken on this basis.

Duplicate Sample Analyses

No laboratory and field duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the high spike analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the low spike and high spike percent recovery (%R) values being within control limits. All data, as reported, are acceptable for use.

ORIGINAL

**TIER I DATA QUALITY ASSESSMENT
ARSENIC ANALYSES: SOIL
METHOD: B9
LOT: AVXX**

Analytical data for 33 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27 and 28, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses
- * Low Spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike/Matrix Spike Duplicate Analyses

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analyses on Sample SAS-95-11. The MSD percent recovery (%R) value of 6.0% was less than the lower control limit of 75%. Since the MS %R value of 120.4% and the relative percent difference (RPD) value of 34.1% were within the control limits, and since the high and low spike %R values were also acceptable, no qualifiers were assigned on this basis.

Low Spike and High Spike Analyses

One low spike and two high spike analyses were performed with this sample lot. The low/high spike %R values were evaluated based on the control chart upper and lower limits. The low spike %R value of 113.0% was greater than the upper control limit of 110.4%. As this low spike %R value was within the *National Functional Guidelines* control limits, no qualifiers were assigned. The high spike %R values of 101.2% and 99.6% were within the control limits.

Duplicate Sample Analyses

No laboratory duplicate analyses were performed for this Lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the RPD values of the high spike and MS/MSD analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the low and high spike and MS/MSD %R values being within control limits, except where noted above.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
ANTIMONY ANALYSES: WATER
METHOD: SW-7041
LOT: AVZG**

Analytical data for four equipment blanks were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28 and 29, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses
- Laboratory Control Sample (LCS) Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Graphite Furnace QC Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Duplicate Sample Analyses

No field duplicate samples were submitted for this lot. No action was taken on this basis.

Overall Assessment

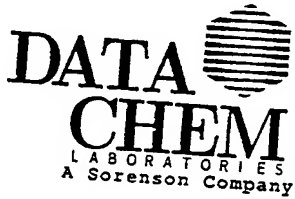
On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the matrix spike/matrix spike duplicate (MS/MSD) analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the laboratory control sample and MS/MSD %R values being within control limits.

All data, as reported, are acceptable for use.

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Sdg	Sampid	Fieldid	Labid	Anlmethod	Qctype1
AVRO	ARS-95-10	AFI7000P	030 UC04455M	LW23	MS
AVRO	ARS-95-10	AFI7000P	031 UC04455M	LW23	MSD
AVRP	ARS-95-10	AFI7000P	021 UC04455M	ECNS	MS
AVRP	ARS-95-10	AFI7000P	022 UC04455M	ECNS	MSD
AVRQ	ARS-95-10	AFI7000P	021 UC04455M	LW27	MS
AVRQ	ARS-95-10	AFI7000P	022 UC04455M	LW27	MSD
AVRR	ARS-95-10	AFI7000P	021 UC04455M	LW30	MS
AVRR	ARS-95-10	AFI7000P	022 UC04455M	LW30	MSD
AVRS	3ER-70	AJC70000	004 UC04464M	ECNW	MS
AVRS	3ER-70	AJC70000	005 UC04464M	ECNW	MSD
AVSY	ARS-95-10	AFP7000P	018 UC04457M	LM25	MS
AVSY	ARS-95-10	AFP7000P	019 UC04457M	LM25	MSD
AVTB	ARS-95-10	AFH7000P	021 UC04454M	KY15	MS
AVTB	ARS-95-10	AFH7000P	022 UC04454M	KY15	MSD
AVVA	ARS-95-10	AFH7000P	021 UC04454M	KF17	MS
AVVA	ARS-95-10	AFH7000P	022 UC04454M	KF17	MSD
AVVS	3ER-70	AIU70000	006 UC04459M	UW29	MS
AVVS	3ER-70	AIU70000	007 UC04459M	UW29	MSD
AVVU	ARS-95-10	AFH7000P	021 UC04454M	LF05	MS
AVVU	ARS-95-10	AFH7000P	022 UC04454M	LF05	MSD
AVXW	SAS-95-10	AFV6800P	032 UC04254M	JS12	MS
AVXW	SAS-95-10	AFV6800P	033 UC04254M	JS12	MSD
AVXX	SAS-95-10	AFV6800P	032 UC04254M	B9	MS
AVXX	SAS-95-10	AFV6800P	033 UC04254M	B9	MSD
AVXY	SAS-95-10	AFV6800P	032 UC04254M	JD20	MS
AVXY	SAS-95-10	AFV6800P	033 UC04254M	JD20	MSD
AVXZ	SAB-95-01A	A536700P	004 UC04228M	7841	MS
AVXZ	SAB-95-01A	A536700P	005 UC04228M	7841	MSD
AVYA	SAS-95-10	AFV6800P	015 UC04254M	7841	MS
AVYA	SAS-95-10	AFV6800P	016 UC04254M	7841	MSD
AVYB	SAB-95-01A	A536700P	004 UC04228M	7041	MS
AVYB	SAB-95-01A	A536700P	005 UC04228M	7041	MSD
AVYC	SAS-95-10	AFV6800P	015 UC04254M	7041	MS
AVYC	SAS-95-10	AFV6800P	016 UC04254M	7041	MSD
AVYQ	SAS-95-10	AFV6800P	032 UC04254M	Y9	MS
AVYQ	SAS-95-10	AFV6800P	033 UC04254M	Y9	MSD
AVZF	3ER-67	AHT6700P	004 UC04285M	7841	MS
AVZF	3ER-67	AHT6700P	005 UC04285M	7841	MSD
AVZG	3ER-68	AIF6800P	006 UC04286M	7041	MS
AVZG	3ER-68	AIF6800P	007 UC04286M	7041	MSD
AWAX	ARS-95-10	AFL7000P	021 UC04456M	KT07	MS
AWAX	ARS-95-10	AFL7000P	022 UC04456M	KT07	MSD
AWBI	ARS-95-10	AFL7000P	019 UC04456M	PRCL	MS
AWBI	ARS-95-10	AFL7000P	020 UC04456M	PRCL	MSD
AWBS	OBS-95-29	AQD6900P	006 UC04325M	7841	MSD
AWBS	OBS-95-29	AQD6900P	005 UC04325M	7841	MS
AWBT	OBS-95-29	AQD6900P	005 UC04325M	7041	MS
AWBT	OBS-95-29	AQD6900P	006 UC04325M	7041	MSD
AWHS	OBP-95-04C	A426600P	014 UC04182M	8290	MS
AWHS	OBP-95-04C	A426600P	015 UC04182M	8290	MSD
AWKZ	OBS-95-04	A046800P	007 UC04264M	8290	MS
AWKZ	OBS-95-04	A046800P	008 UC04264M	8290	MSD
AWKZ	OBS-95-20	AQF6800P	027 UC04282M	8290	MS
AWKZ	OBS-95-20	AQF6800P	028 UC04282M	8290	MSD



QUALITY CONTROL REPORT

AVZG

Form RLIMS65-V1.0
0112960903548
Page 1



Method.....: IT-SW-7041
Analyte.....: Antimony
Matrix.....: WATER

Date Printed.....: 12-JAN-1996 09:03
Group Name.....: G9609011
Analyst.....: T. Cherdin
Units.....: ug/L 1-12-96

QC Limit Type....: Full

Blank Results

Sample ID	Sample Name	QC Date	Blank Result
S95CLOCJ	BL-104729-1	29-DEC-1995	1.19 ug/L = 0.119 ug/g. ND.

LCS Results

Sample ID	Sample Name	QC Date	LCS Result	Amount Spiked	Percent Recovery
S95CLOCK	QC-104729-1	29-DEC-1995	46.5 46.5	50.0	93.0

Matrix Spike Results

Sample ID	Sample Name	QC Date	Sample Result	MS Result	Amount Spiked	Percent Recovery
S95CLOCM	UC 04286MS 3ER-68	29-DEC-1995	-0.570	47.5 47.53	50.0	95.1

Matrix Spike Duplicate Results

Sample ID	Sample Name	QC Date	MSD Result	Percent Recovery	Relative % Difference
S95CLOCN	UC 04286MSD 3ER-68	29-DEC-1995	48.7 48.69	97.4	2.41

Matrix Duplicate Results

Sample ID	Sample Name	QC Date	Sample Result	MD Result	Relative % Difference
S95CLOCL	UC 04285MD 3ER-67	29-DEC-1995	1.63 0.163 ug/g ND	-0.380 0.038 ug/g ND	-124. NC

1/15/96

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**TIER I DATA QUALITY ASSESSMENT
ANTIMONY ANALYSES: SOIL
METHOD: SW-7041
LOT: AVYB**

Analytical data for 15 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses
- Laboratory Control Sample (LCS) Analyses
- Duplicate Sample Analyses (Laboratory and Field)
- Graphite Furnace QC Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike/Matrix Spike Duplicate Analyses

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on Sample OBS-95-11. The percent recovery (%R) values of 70.9% and 63.8%% were less than the lower control limit of 75%. Antimony results in the associated samples were qualified as estimated (UJ-8).

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the MS/MSD analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the laboratory control sample %R value being within control limits.

Qualification of sample results was required because of low MS/MSD %R values.

All data, as qualified, are acceptable for use.

ORIGINAL

**TIER I DATA QUALITY ASSESSMENT
ANTIMONY ANALYSES: SOIL
METHOD: SW-7041
LOT: AVYC**

Analytical data for 18 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses
- Laboratory Control Sample (LCS) Analyses
- Duplicate Sample Analyses (Laboratory and Field)
- Graphite Furnace QC Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike/Matrix Spike Duplicate Analyses

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on Sample OBS-95-11. The percent recovery (%R) values of 65.2% and 60.6%% were less than the lower control limit of 75%. Antimony results in the associated samples were qualified as estimated (UJ-8).

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the MS/MSD analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the laboratory control sample %R value being within control limits.

Qualification of sample results was required because of low MS/MSD %R values.

All data, as qualified, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
SELENIUM ANALYSES: WATER
METHOD: SD25
LOT: AVZD**

Analytical data for four equipment blanks were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28 and 29, 1995 and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike Sample Analyses
- * Low spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike/Matrix Spike Duplicate Analyses

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed for this lot. No action was taken on this basis.

Low Spike and High Spike Analyses

One low spike and two high spike analyses were performed with this sample lot. The low/high spike percent recovery (%R) values were evaluated based on the control chart upper and lower limits. The low spike %R value of 79% was less than the lower control limit of 81.5%. As this low spike %R value was also less than the *National Functional Guidelines* control limits, all selenium results were qualified as estimated (UJ-10). The high spike %R values of 82.1% and 90.3% were within the control limits. The relative percent difference (RPD) value of 9.5% for high spike analyses was greater than the control limit of 8.2%. As this RPD value was less than the *National Functional Guidelines* control limit of 20%, no action was taken.

ORIGINAL

Duplicate Sample Analyses

No laboratory and field duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the RPD values of the high spike analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the high spike %R values being within control limits.

Qualification of sample results was required because of a low spike %R value.

All data, as qualified, are acceptable for use.

ORIGINAL

TIER I DATA QUALITY ASSESSMENT

SELENIUM ANALYSES: SOIL

METHOD: JD20

LOT: AVXY

Analytical data for 33 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27 and 28, 1995 and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses
- Low spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- * Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike/Matrix Spike Duplicate Analyses

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analyses on Sample SAS-95-11. The MS and MSD percent recovery (%R) values of 51.0% and 48.2% were less than the lower control limit of 75%. Selenium results in the associated samples were qualified as estimated (UJ-8/J-8). The relative percent difference (RPD) value of 5.6% was within the control limit.

Duplicate Sample Analyses

No laboratory duplicate analyses were performed for this lot. No action was taken on this basis.

Certified Reporting Limits

In raw data, the selenium result in Sample SAS-95-11 was greater than the reporting limit of 0.459 $\mu\text{g/g}$ at 0.493 $\mu\text{g/g}$. However, the laboratory reported this result as not detected in the transfer files. The laboratory was contacted, and resubmitted the transfer files and the sample

ORIGINAL

results summary page for the data package, showing the corrected value. No further action was taken.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the QC criteria-compliant RPD values of the high spike and MS/MSD analyses. Accuracy was acceptable, as demonstrated by the low and high spike %R values being within control limits.

Qualification of sample results was required because of low MS/MSD %R values.

All data, as qualified, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
THALLIUM ANALYSES: WATER
METHOD: SW-7841
LOT: AVZF**

Analytical data for three equipment blank samples and one field blank sample were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28 and 29, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- Matrix Spike Sample Analyses
- Low Spike and High Spike Analyses
- Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

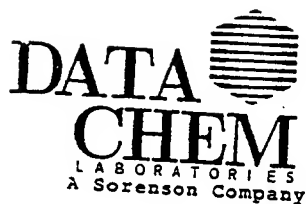
Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the QC criteria-compliant relative percent difference (RPD) values of the laboratory duplicate, high spike and matrix spike/matrix spike duplicate (MS/MSD) analyses. Accuracy was acceptable, as demonstrated by the low spike and high spike percent recovery (%R) and MS/MSD %R values being within control limits.

All data, as reported, are acceptable for use.

ORIGINAL



QUALITY CONTROL REPORT

Form RLIMS65-V1.0
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Page 1



G960G029

AVZF

Method.....: IT-SW-7841
Analyte.....: THALLIUM
Matrix.....: WATER

Date Printed.....: 16-JAN-1996 18:34
Group Name.....: G960G029
Analyst.....: *g/cch 1/17/96*
Units.....: ug/L

QC Limit Type....: Full

Blank Results

Sample ID	Sample Name	QC Date	Blank Result
S95CL0CC	BL-104732-1	28-DEC-1995	-0.290

ND.

LCS Results

Sample ID	Sample Name	QC Date	LCS Result	Amount Spiked	Percent Recovery
S95CL0CD	QC-104732-1	28-DEC-1995	44.6	50.0	89.1

44.57

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Matrix Spike Results

Sample ID	Sample Name	QC Date	Sample Result	MS Result	Amount Spiked	Percent Recovery
S95CL0CF	UC 04285MS	28-DEC-1995	0.0500	22.9	25.0	91.6

3ER-67

22.89

Matrix Spike Duplicate Results

Sample ID	Sample Name	QC Date	MSD Result	Percent Recovery	Relative % Difference
S95CL0CG	UC 04285MSD	28-DEC-1995	23.2	92.6	1.13

3ER-67

23.15

Matrix Duplicate Results

Sample ID	Sample Name	QC Date	Sample Result	MD Result	Relative % Difference
S95CL0CH	UC 04286MD	28-DEC-1995	0.0100	0.0700	150.

3ER-68

ND

ND

NC

OK

**TIER I DATA QUALITY ASSESSMENT
THALLIUM ANALYSES: SOIL
METHOD: SW-7841
LOT: AVXZ**

Analytical data for 15 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses
- Laboratory Control Sample (LCS) Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Graphite Furnace QC Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Duplicate Sample Analyses

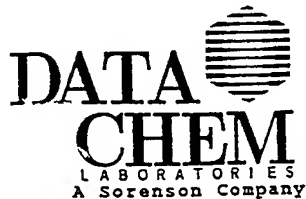
No field duplicate samples were submitted for this Lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the QC criteria-compliant relative percent difference (RPD) values of the matrix spike/matrix spike duplicate (MS/MSD) analyses. Accuracy was acceptable, as demonstrated by the laboratory control sample and MS/MSD percent recovery (%R) values being within control limits.

All data, as reported, are acceptable for use.



QUALITY CONTROL REPORT

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Page 1



G960B023

AVX2

Method.....: IT-SW-7841
Analyte.....: THALLIUM
Matrix.....: SOILDate Printed.....: 12-JAN-1996 15:19
Group Name.....: G960B023
Analyst.....: D~
Units.....: ug/g

QC Limit Type....: Full

Blank Results

Sample ID	Sample Name	QC Date	Blank Result
S95CH084	BL-104716-1	21-DEC-1995	0.0440 / 0.044

LCS Results

Sample ID	Sample Name	QC Date	LCS Result	Amount Spiked	Percent Recovery
S95CH085	QC-104716-1	21-DEC-1995	37.5 / 37.4	39.0	96.0 / 96.03

Matrix Spike Results

Sample ID	Sample Name	QC Date	Sample Result	MS Result	Amount Spiked	Percent Recovery
S95CH086	UC 04228MS	21-DEC-1995	0.253 / 0.253	2.18 / 2.184	2.50	87.4 / 87.76

Matrix Spike Duplicate Results

Sample ID	Sample Name	QC Date	MSD Result	Percent Recovery	Relative % Difference
S95CH087	UC 04228MSD	21-DEC-1995	2.39 / 2.388	95.5 / 95.52	8.92

Matrix Duplicate Results

Sample ID	Sample Name	QC Date	Sample Result	MD Result	Relative % Difference
S95CH088	UC 04229MD	21-DEC-1995	0.0970 / 0.097	0.0530 / 0.053	-58.7 / NC

**TIER I DATA QUALITY ASSESSMENT
THALLIUM ANALYSES: SOIL
METHOD: SW-7841
LOT: AVYA**

Analytical data for 18 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses
- * Laboratory Control Sample (LCS) Analyses
- Duplicate Sample Analyses (Laboratory and Field)
- Graphite Furnace QC Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

One laboratory control sample (LCS) analysis was performed with this sample lot. The percent recovery (%R) value of 63.8% was less than the lower control limit of 80%. Thallium results in this lot were qualified as estimated (UJ-10).

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the matrix spike/matrix spike duplicate (MS/MSD) analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the MS/MSD %R values being within control limits.

Qualification of sample results was required because of a low LCS %R value.

All data, as qualified, are acceptable for use.

ORIGINAL



QUALITY CONTROL REPORT

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Page 1

AVYA

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G960G02C

Method.....IT-SW-7841
Analyte.....THALLIUM
Matrix.....SOILDate Printed.....16-JAN-1996 18:35
Group Name.....G960G02C
Analyst.....GJM 1/17/96
Units.....ug/g

QC Limit Type....Full

Blank Results

Sample ID	Sample Name	QC Date	Blank Result
S95CH089	BL-104723-1	21-DEC-1995	-0.00300

LCS Results

Sample ID	Sample Name	QC Date	LCS Result	Amount Spiked	Percent Recovery
S95CH08B	QC-104723-1	21-DEC-1995	24.9 24.89	39.0	63.8 63.85

80-120%

Matrix Spike Results

Sample ID	Sample Name	QC Date	Sample Result	MS Result	Amount Spiked	Percent Recovery
S95BW11C	UC 04254MS	21-DEC-1995	0.190 0.19	2.37 2.371	2.50	94.8

SAS-95-11

Matrix Spike Duplicate Results

Sample ID	Sample Name	QC Date	MSD Result	Percent Recovery	Relative % Difference
S95BW11D	UC 04254MSD	21-DEC-1995	2.37 2.365	94.6	0.253

SAS-95-11

Matrix Duplicate Results

Sample ID	Sample Name	QC Date	Sample Result	MD Result	Relative % Difference
S95CH08C	UC 04260MD	21-DEC-1995	0.175 ND	0.117 ND	-39.7 AC

SAB-95-1113

**TIER I DATA QUALITY ASSESSMENT
MERCURY ANALYSES: WATER
METHOD: CC8
LOT: AVUQ**

Analytical data for four equipment blanks were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 28 and 29, 1995 and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike Sample Analyses
- Low Spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike/Matrix Spike Duplicate Analyses

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed for this lot. No action was taken on this basis.

Duplicate Sample Analyses

No laboratory and field duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the high spike analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the low and high spike percent recovery (%R) values being within control limits. All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
MERCURY ANALYSES: SOIL
METHOD: Y9
LOT: AVYQ**

Analytical data for 33 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 27 and 28, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses
 - * Low Spike and High Spike Analyses
 - * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Low Spike and High Spike Analyses

One low spike and two high spike analyses were performed with this sample lot. The low/high spike percent recovery (%R) values were evaluated based on the control chart upper and lower limits. The low spike %R value of 157.0% was greater than the upper control limit of 135%. All positive mercury results in the associated samples were qualified as estimated (J-10). The high spike %R values of 111.8% and 106% were within the control limits.

Duplicate Sample Analyses

No laboratory duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the high spike and matrix spike/matrix spike duplicate (MS/MSD) analyses being within QC criteria.

Accuracy was acceptable, as demonstrated by the high spike and MS/MSD %R values being within control limits.

Qualification of sample results was required because of a high spike %R value.

All data, as qualified, are acceptable for use.



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Case Narrative

Method: Y9

Analysis: Mercury

Preparation SOP #: Y9, Rev. 3 (0)

Analysis SOP #: Y9, Rev. 3 (0)

Lot: AVYQ

DCL Set ID: U95-0640-33 & U95-0641-33

Client: RUST E & I

Account: 3224

Matrix: Soil

General Set Information: There are thirty three field samples in these sets. The samples were analyzed for mercury in soil.

Method Summary: A representative 0.20 g (± 0.002 g) wet weight portion of sample is treated in a BOD with sulfuric and nitric acid. The sample is then heated for two minutes on a steam bath. After heating, the sample is cooled and ASTM Type II water, potassium permanganate, and potassium persulfate are added. The sample is heated for 30 minutes. After heating, the sample is cooled and ASTM Type II water is again added. Hydroxylamine hydrochloride is added to the sample, and an aliquot of the prepared sample is poured into a sample cup and loaded into the CVAA autosampler. The automated introduction system of the instrument injects a reproducible volume of standard or sample from the sample cups into an HCl carrier stream. Stannous chloride is then added to the sample in the sample stream; and the resulting Hg vapor is separated from the liquid by a gas/liquid separator. The resulting vapor is transported into the analytical cell for determination of Hg content.

Sample Preparation: All samples were prepared in accordance with published procedures.

Holding Times: The holding times were met for both preparation and analysis.

Instrument Calibration: Instrument calibration was performed in accordance with published procedures.

Calibration Check Standards: Recoveries of the analyte in all calibration check standards are within quality control limits.

Calibration Check Blanks: No method analyte was found in any calibration check blank sample at levels above detection limits.

Dilutions: None are reported for this lot.

QC Sample Analysis: QC samples were prepared and analyzed according to the method. Recovery data were submitted and approved according to the USAEC QC plan.

Matrix Spike Analysis: A matrix spike was prepared from samples UC 04254 and analyzed with this lot. Recovery of the spiked analyte in the matrix spike is within the quality control limits of $\pm 25\%$.

Matrix Spike Duplicate Analysis: A matrix spike duplicate was also prepared from the same samples as the matrix spike. The relative percent difference between the matrix spike and the matrix spike duplicate is within the quality control limit of 20%.

Flagging Codes: Samples flagged with a "D" are duplicates.

NC/CAR and CPR: None are reported for this lot.

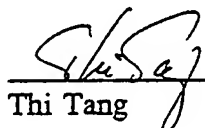
Sample Calculation: The final results are calculated in $\mu\text{g/g}$ by the equation $(A) \times (B)$ where

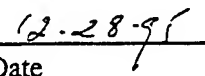
A = Analyte concentration from instrument determination ($\mu\text{g/g}$)

B = Dilution performed at time of analysis

e.g. UC 04240: $(0.016 \mu\text{g/g}) \times (1) = 0.016 \mu\text{g/g}$

Miscellaneous Comments: None.


Thi Tang


Date

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWKZ	OBP-95-01A	038 UC04344	SOIL	8290	78HXDF	0.00000603	B	U-7	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	234PCF	LT 0.000000980		UJ-19	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	78PCDF	LT 0.000000900		UJ-19	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	TCDD	LT 0.00000131		UJ-19	UGG
AWHS	OBP-95-01C	003 UC04172	SOIL	8290	TCDF	LT 0.00000133		UJ-19	UGG
AWHS	OBP-95-01D	007 UC04176	SOIL	8290	678HPF	0.00000131	DJP	U-7	UGG
AWHS	OBP-95-02A	004 UC04173	SOIL	8290	678HPF	0.00000210	JP	U-7	UGG
AWHS	OBP-95-03C	010 UC04179	SOIL	8290	678HPF	0.00000239	JP	U-7	UGG
AWKZ	OBS-95-01	003 UC04261	SOIL	8290	678HPF	0.00000325	B	U-7	UGG
AWKZ	OBS-95-01	003 UC04261	SOIL	8290	OCDD	0.00000944	B	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	678HPF	0.00000679	B	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	789HPF	0.00000118	JPB	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	78HXDF	0.00000228	JPB	U-7	UGG
AWKZ	OBS-95-02	004 UC04262	SOIL	8290	OCDD	0.0000195	B	U-7	UGG
AWKZ	OBS-95-03	005 UC04263	SOIL	8290	678HPD	0.00000346	B	U-7	UGG
AWKZ	OBS-95-03	005 UC04263	SOIL	8290	678HPF	0.00000587	B	U-7	UGG
AWKZ	OBS-95-03	005 UC04263	SOIL	8290	OCDD	0.0000266	B	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	678HPD	0.00000311	B	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	678HPF	0.00000226	B	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	78HXDF	0.000000837	JPB	U-7	UGG
AWKZ	OBS-95-04	006 UC04264	SOIL	8290	OCDD	0.0000280	B	U-7	UGG
AWKZ	OBS-95-05	009 UC04265	SOIL	8290	678HPF	0.00000248	JPB	U-7	UGG
AWKZ	OBS-95-05	009 UC04265	SOIL	8290	TCDF	0.000000174	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	678HPF	0.000000952	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	OCDD	0.00000446	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	OCDF	0.00000299	JPB	U-7	UGG
AWKZ	OBS-95-06	010 UC04266	SOIL	8290	TCDF	0.000000127	JPB	U-7	UGG
AWKZ	OBS-95-07	011 UC04267	SOIL	8290	678HPF	0.00000288	B	U-7	UGG
AWKZ	OBS-95-07	011 UC04267	SOIL	8290	678HXF	0.000000268	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	678HPF	0.000000997	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	OCDD	0.00000339	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	OCDF	0.00000239	JPB	U-7	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	TCDD	LT 0.000000410		UJ-19	UGG
AWKZ	OBS-95-08	012 UC04268	SOIL	8290	TCDF	0.000000206	JPB	UJ-7,19	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	234HXF	0.000000209	JPB	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	678HPF	0.00000158	JPB	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	678HXF	0.000000154	JPB	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	OCDD	0.00000622	B	U-7	UGG
AWKZ	OBS-95-09	013 UC04269	SOIL	8290	OCDF	0.00000363	JPB	U-7	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWKZ	OBS-95-10	014 UC04270	SOIL	8290	OCDD	0.00000688	B	U-7	UGG
AWKZ	OBS-95-10	014 UC04270	SOIL	8290	OCDF	0.00000428	JPB	U-7	UGG
AWKZ	OBS-95-10	014 UC04270	SOIL	8290	TCDF	0.000000169	JPB	U-7	UGG
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	234HXF	0.000000276	JPB	U-7	UGG
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	678HPF	0.00000241	JPB	U-7	UGG
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	OCDD	0.00000789	B	U-7	UGG
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	OCDF	0.00000582	B	U-7	UGG
AWKZ	OBS-95-11	015 UC04271	SOIL	8290	TCDF	0.000000233	JPB	U-7	UGG
AWKZ	OBS-95-12	017 UC04273	SOIL	8290	678HPF	0.00000546	B	U-7	UGG
AWKZ	OBS-95-12	017 UC04273	SOIL	8290	678HXF	0.000000301	JPB	U-7	UGG
AWKZ	OBS-95-12	017 UC04273	SOIL	8290	TCDF	0.000000279	JPB	U-7	UGG
AWKZ	OBS-95-13	018 UC04274	SOIL	8290	234HXF	0.000000616	JPB	U-7	UGG
AWKZ	OBS-95-13	018 UC04274	SOIL	8290	678HXF	0.000000573	JPB	U-7	UGG
AWKZ	OBS-95-15	020 UC04276	SOIL	8290	678HPF	0.00000121	JPB	U-7	UGG
AWKZ	OBS-95-15	020 UC04276	SOIL	8290	OCDF	0.00000305	JPB	U-7	UGG
AWKZ	OBS-95-15	020 UC04276	SOIL	8290	TCDF	0.000000171	JPB	U-7	UGG
AWKZ	OBS-95-16	021 UC04277	SOIL	8290	678HPF	0.00000289	B	U-7	UGG
AWKZ	OBS-95-16	021 UC04277	SOIL	8290	OCDF	0.00000582	B	U-7	UGG
AWKZ	OBS-95-16	021 UC04277	SOIL	8290	TCDF	0.000000346	JPB	U-7	UGG
AWKZ	OBS-95-18	023 UC04279	SOIL	8290	678HPF	0.00000419	B	U-7	UGG
AWKZ	OBS-95-20	025 UC04281	SOIL	8290	234HXF	0.000000473	JPB	U-7	UGG
AWKZ	OBS-95-20	025 UC04281	SOIL	8290	678HPF	0.00000198	JPB	U-7	UGG
AWKZ	OBS-95-20	025 UC04281	SOIL	8290	OCDF	0.00000353	JPB	U-7	UGG
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	678HPD	0.00000750	B	U-7	UGG
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	678HPF	0.0000189	B	U-7	UGG
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	78HXDF	0.00000448	B	U-7	UGG
AWKZ	OBS-95-21	029 UC04316	SOIL	8290	OCDD	0.0000575	B	U-7	UGG
AWKZ	OBS-95-22	030 UC04317	SOIL	8290	78HXDF	0.00000654	B	U-7	UGG
AWKZ	OBS-95-23	031 UC04318	SOIL	8290	678HPF	0.0000172	B	U-7	UGG
AWKZ	OBS-95-23	031 UC04318	SOIL	8290	78HXDF	0.00000409	B	U-7	UGG
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	678HPD	0.00000332	B	U-7	UGG
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	678HPF	0.00000546	B	U-7	UGG
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	78HXDF	0.00000193	JPB	U-7	UGG
AWKZ	OBS-95-24	032 UC04319	SOIL	8290	OCDD	0.0000205	B	U-7	UGG
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	678HPD	0.00000493	B	U-7	UGG
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	678HPF	0.00000611	B	U-7	UGG
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	789HPF	0.000000899	JPB	U-7	UGG
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	78HXDF	0.00000306	B	U-7	UGG
AWKZ	OBS-95-25	033 UC04320	SOIL	8290	OCDD	0.0000390	B	U-7	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 6

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWKZ	OBS-95-26	034 UC04321	SOIL	8290	78HXDF	0.0000108	B	U-7	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	234HXF	LT 0.00000400		UJ-19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	678HPF	0.00000286	B	UJ-7,19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	678HXF	LT 0.00000280		UJ-19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	789HPF	LT 0.00000110		UJ-19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	789HXF	LT 0.00000570		UJ-19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	78HXDF	LT 0.00000410		UJ-19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	OCDD	0.0000206	B	UJ-7,19	UGG
AWKZ	OBS-95-27	035 UC04322	SOIL	8290	OCDF	0.00000935		J-19	UGG
AWKZ	OBS-95-28	036 UC04323	SOIL	8290	678HPF	0.0000110	B	U-7	UGG
AWKZ	OBS-95-28	036 UC04323	SOIL	8290	789HPF	0.00000249	JPB	U-7	UGG
AWKZ	OBS-95-28	036 UC04323	SOIL	8290	78HXDF	0.00000337	B	U-7	UGG
AWBP	OBS-95-29	005 UC04325	SOIL	JS12	CR	12.9		J-21	UGG
AWBQ	OBS-95-29	005 UC04325	SOIL	B9	AS	6.86		J-5B	UGG
AWBS	OBS-95-29	003 UC04325	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-29	005 UC04325	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-30	006 UC04327	SOIL	JS12	CR	19.7		J-21	UGG
AWBQ	OBS-95-30	006 UC04327	SOIL	B9	AS	4.58		J-5B	UGG
AWBS	OBS-95-30	007 UC04327	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-30	006 UC04327	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-31	007 UC04329	SOIL	JS12	CR	13.2		J-21	UGG
AWBQ	OBS-95-31	007 UC04329	SOIL	B9	AS	4.98		J-5B	UGG
AWBS	OBS-95-31	008 UC04329	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-31	007 UC04329	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-32	008 UC04332	SOIL	JS12	CR	8.89		J-21	UGG
AWBQ	OBS-95-32	008 UC04332	SOIL	B9	AS	4.54		J-5B	UGG
AWBS	OBS-95-32	009 UC04332	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-32	008 UC04332	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-33	009 UC04333	SOIL	JS12	CR	19.5		J-21	UGG
AWBQ	OBS-95-33	009 UC04333	SOIL	B9	AS	8.75		J-5B	UGG
AWBS	OBS-95-33	010 UC04333	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-33	009 UC04333	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-34	010 UC04336	SOIL	JS12	CR	15.1		J-21	UGG
AWBQ	OBS-95-34	010 UC04336	SOIL	B9	AS	7.22		J-5B	UGG
AWBS	OBS-95-34	011 UC04336	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-34	010 UC04336	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWKZ	OBS-95-35	016 UC04272	SOIL	8290	678HPF	0.00000513	DB	U-7	UGG
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	678HPF	0.00000181	DJPB	U-7	UGG
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	678HXF	0.000000196	DJPB	U-7	UGG

**DATA QUALIFIER SUMMARY TABLE
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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	OCDF	0.00000380	DJPB	U-7	UGG
AWKZ	OBS-95-36	026 UC04282	SOIL	8290	TCDF	0.000000619	DJPB	U-7	UGG
AWKZ	OBS-95-37	037 UC04324	SOIL	8290	678HPF	0.00000791	DB	U-7	UGG
AWKZ	OBS-95-37	037 UC04324	SOIL	8290	789HPF	0.00000153	DJPB	U-7	UGG
AWBP	OBS-95-38	011 UC04337	SOIL	JS12	CR	17.7	D	J-21	UGG
AWBQ	OBS-95-38	011 UC04337	SOIL	B9	AS	6.27	D	J-5B	UGG
AWBS	OBS-95-38	012 UC04337	SOIL	7841	TL	LT 1.00	D	UJ-10	UGG
AWBU	OBS-95-38	011 UC04337	SOIL	Y9	HG	LT 0.0500	D	UJ-7	UGG
AWBP	OBS-95-39	014 UC04343	SOIL	JS12	CR	16.9		J-21	UGG
AWBQ	OBS-95-39	014 UC04343	SOIL	B9	AS	5.57		J-5B	UGG
AWBS	OBS-95-39	015 UC04343	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-39	014 UC04343	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-40	012 UC04339	SOIL	JS12	CR	19.1		J-21	UGG
AWBQ	OBS-95-40	012 UC04339	SOIL	B9	AS	6.00		J-5B	UGG
AWBS	OBS-95-40	013 UC04339	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-40	012 UC04339	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG
AWBP	OBS-95-41	013 UC04341	SOIL	JS12	CR	17.1		J-21	UGG
AWBQ	OBS-95-41	013 UC04341	SOIL	B9	AS	5.90		J-5B	UGG
AWBS	OBS-95-41	014 UC04341	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AWBU	OBS-95-41	013 UC04341	SOIL	Y9	HG	LT 0.0500		UJ-7	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 8

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVXY	SAB-95-01A	005 UC04228	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-01A	003 UC04228	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-01B	006 UC04229	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-01B	006 UC04229	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-02A	008 UC04231	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-02A	009 UC04231	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-02B	009 UC04232	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-02B	010 UC04232	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-03A	011 UC04234	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-03A	012 UC04234	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-03B	012 UC04235	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-03B	013 UC04235	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-04A	014 UC04237	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-04A	015 UC04237	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-04B	015 UC04238	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-04B	016 UC04238	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVYQ	SAB-95-04B	015 UC04238	SOIL	Y9	HG	0.0611		J-10	UGG
AVXY	SAB-95-05A	017 UC04240	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-05A	018 UC04240	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-05B	018 UC04241	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAB-95-05B	019 UC04241	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-06A	020 UC04243	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-06A	003 UC04243	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-06A	003 UC04243	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-06B	021 UC04244	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-06B	004 UC04244	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-06B	004 UC04244	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-07A	026 UC04249	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-07A	009 UC04249	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-07A	009 UC04249	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-07B	027 UC04250	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-07B	010 UC04250	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-07B	010 UC04250	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-08A	029 UC04252	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-08A	012 UC04252	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-08A	012 UC04252	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-08B	030 UC04253	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-08B	013 UC04253	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-08B	013 UC04253	SOIL	7041	SB	LT 1.00		UJ-8	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 8

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVYQ	SAB-95-08B	030 UC04253	SOIL	Y9	HG	0.0824		J-10	UGG
AVXY	SAB-95-09A	034 UC04255	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-09A	017 UC04255	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-09A	017 UC04255	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-09B	035 UC04256	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-09B	018 UC04256	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-09B	018 UC04256	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-10A	036 UC04257	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-10A	019 UC04257	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-10A	019 UC04257	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-10B	037 UC04258	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAB-95-10B	020 UC04258	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAB-95-10B	020 UC04258	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAB-95-11A	038 UC04259	SOIL	JD20	SE	LT 0.449	D	UJ-8	UGG
AVYA	SAB-95-11A	021 UC04259	SOIL	7841	TL	LT 1.00	D	UJ-10	UGG
AVYC	SAB-95-11A	021 UC04259	SOIL	7041	SB	LT 1.00	D	UJ-8	UGG
AVXY	SAB-95-11B	039 UC04260	SOIL	JD20	SE	LT 0.449	D	UJ-8	UGG
AVYA	SAB-95-11B	022 UC04260	SOIL	7841	TL	LT 1.00	D	UJ-10	UGG
AVYC	SAB-95-11B	022 UC04260	SOIL	7041	SB	LT 1.00	D	UJ-8	UGG
AVXY	SAS-95-01	007 UC04230	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAS-95-01	008 UC04230	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-02	010 UC04233	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAS-95-02	011 UC04233	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-03	013 UC04236	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAS-95-03	014 UC04236	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-04	016 UC04239	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAS-95-04	017 UC04239	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-05	019 UC04242	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYB	SAS-95-05	020 UC04242	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVYQ	SAS-95-05	019 UC04242	SOIL	Y9	HG	0.0574		J-10	UGG
AVXY	SAS-95-06	022 UC04245	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAS-95-06	005 UC04245	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAS-95-06	005 UC04245	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-07	023 UC04246	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAS-95-07	006 UC04246	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAS-95-07	006 UC04246	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVYQ	SAS-95-07	023 UC04246	SOIL	Y9	HG	0.0565		J-10	UGG
AVXY	SAS-95-08	024 UC04247	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAS-95-08	007 UC04247	SOIL	7841	TL	LT 1.00		UJ-10	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 8

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVYC	SAS-95-08	007 UC04247	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-09	025 UC04248	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAS-95-09	008 UC04248	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAS-95-09	008 UC04248	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVYQ	SAS-95-09	025 UC04248	SOIL	Y9	HG	0.0519		J-10	UGG
AVXY	SAS-95-10	028 UC04251	SOIL	JD20	SE	LT 0.449		UJ-8	UGG
AVYA	SAS-95-10	011 UC04251	SOIL	7841	TL	LT 1.00		UJ-10	UGG
AVYC	SAS-95-10	011 UC04251	SOIL	7041	SB	LT 1.00		UJ-8	UGG
AVXY	SAS-95-11	031 UC04254	SOIL	JD20	SE	0.493	D	UJ-8	UGG
AVYA	SAS-95-11	014 UC04254	SOIL	7841	TL	LT 1.00	D	UJ-10	UGG
AVYC	SAS-95-11	014 UC04254	SOIL	7041	SB	LT 1.00	D	UJ-8	UGG

**DATA QUALIFIER SUMMARY TABLE
FOR BACKGROUND AND FIELD BLANK SAMPLES**

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVZD	3ER-67	005 UC04285	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3ER-68	006 UC04286	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3ER-69	007 UC04349	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3FB-P	008 UC04353	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	678HPD	0.00000655	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	678HPF	0.0000221	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	78HXDF	0.00000762	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	OCDD	0.0000301	B	U-7	UGG
AWKZ	BKS-95-07	040 UC04346	SOIL	8290	678HPF	0.0000221	B	U-7	UGG
AWKZ	BKS-95-07	040 UC04346	SOIL	8290	78HXDF	0.00000457	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	678HPD	0.00000352	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	678HPF	0.00000511	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	OCDD	0.0000266	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	678HPD	0.00000320	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	678HPF	0.00000333	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	78HXDF	0.00000166	JPB	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	OCDD	0.0000186	B	U-7	UGG

ORIGINAL



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APPENDIX B DATA QUALIFIER REASON CODES

ORIGINAL

DATA QUALIFICATION CODES

1	Holding Time
2	Sample Preservation
3	Sample Custody
4	Missing Deliverables
5A	Calibration (initial)
5B	Calibration (continuing)
6	Field Blanks
7	Laboratory Blanks
8	Matrix Spike
9	Precision (Matrix Spike Duplicate)
10	Laboratory Control Sample
11	Detection Limit
12	Standards
13	Surrogates
14	Other
15	Furnace QC
16	ICP Serial Dilution
17	Chemical Recoveries
18	Trip Blanks
19	Internal Standards
20	Linear Range Exceeded
21	Potential False Positives



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003

SWMU 13
TIRE DISPOSAL AREA

Prepared for:

RUST Environment and Infrastructure
743 Horizon Court, Suite 240
Grand Junction, Colorado 81506

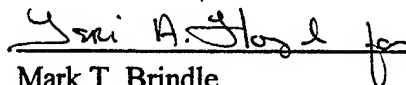
Prepared by:

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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


Mark T. Brindle
Project Manager
EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 13	VOC	ANRP	LM23 (SOIL)	Bruce Tiffany	Eric Strout
	SVOC	ANQQ	LM25 (SOIL)	Bruce Tiffany	Eric Strout

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as Appendix A. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SWMU 13 Tire Disposal Area

Volatile Organics

One lot of volatile organic analyses of soil samples using Method LM23 was reviewed. Data were found to be acceptable for use without qualification.

Semivolatile Organic Compounds

One lot of semivolatile organic compound (SVOC) analyses of soil samples using Method LM25 was reviewed. Bis(2-ethylhexyl)phthalate and several unknowns were qualified due to blank contamination. Hexachloro cyclopentadiene results (all non-detects) were qualified as estimated due to decreased sensitivity during continuing calibration. Three PCB aroclors (PCB 1016, 1260, and 1262) and toxaphene were reported as less than the CRL ("LT") with no flag or qualifying code. Because they were not analyzed for in the samples, the results should be qualified as rejected.

All other SVOC are acceptable for use as reported.

**DATA QUALITY ASSESSMENT
VOLATILE ORGANIC ANALYSES: SOIL
METHOD: LM23
Lot No.: ANRP**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANRP was provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. Sample moisture data was provided on the transfer file, but moisture raw data logbook pages were not provided. Transfer files, coding forms, USAEC Control Chart Response and DataChem QA Status Reports were provided.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field Chain-of-Custody forms were present and complete for each sample in Lot ANRP. All forms were signed and dated. The field Chain-of-Custody forms indicated no problems with sample receipt conditions. All samples in Lot ANRP were analyzed.

Laboratory Chain-of-Custody forms were present and complete for each sample in Lot ANRP. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory Chain-of-Custody forms. The field ID and laboratory ID for Sample TDP-94-10A were tracked from the Chain-of-Custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

No field, equipment, or trip blanks were submitted with Lot ANRP. This lot did not contain any field duplicates.

IV. TECHNICAL ASSESSMENT

1.0 Sample Holding Times: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The extraction holding time criterion listed in Method LM23 for soil matrices is seven days from date of sampling to date of extraction. All samples in Lot ANRP were extracted eight days after sampling. Standard (USEPA) holding time for soils is 14 days; no qualification is recommended. The analytical holding time criterion listed in Method LM23 for soil matrices is 14 days from date of sampling. All analyses were performed within 14 days of sampling.

2.0 GC/MS Instrument Performance Check: ACCEPTABLE/All criteria met.

Bromofluorobenzene (BFB) was analyzed at the beginning of each calibration sequence as required. All appropriate BFB data were provided and all results were within the specified control limits listed in the data package.

3.0 Initial and Continuing Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The initial calibration was performed at the proper frequency. Five standards were used, meeting USATHAMA PAM 11-41 criterion for Class 1A. Response factors and percent relative standard deviation (%RSD) values were calculated for several compounds (see Data Quality Assessment Worksheets). No transcription or calculation errors were noted. Two compounds (methyl ethyl ketone at 43% and methyl isobutyl ketone at 43%) had %RSD values above the 30% upper control limit. These compounds were not detected in any sample. The CRL were judged not significantly affected, and no action was taken.

Daily calibrations were run at the correct frequency (before and after sample analyses). All daily calibrations met the Method LM23 criteria. The calibrations had several percent difference (%D) values between daily and initial response factors above 25%. Compounds with outlying %D values are listed in the Data Quality Assessment Worksheets. There were no positive target compound results in any sample. The certified reporting limits (CRL) for non-detected compounds associated with a non-compliant %D values greater than 50% were judged as low biased, and would be estimated (UJ). However, all CRL were previously qualified as estimated due to extraction holding time criteria violations. No additional action was taken.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The method blank was analyzed at the proper frequency (one for each lot). The blank was free of target analytes and unknowns above the CRL. Two compounds (methyl isobutyl ketone and 1,1,2,2,-tetrachloroethane) were detected at concentrations below the CRL. These compounds were not detected in any of the associated samples. No action was required.

5.0 Surrogate Recovery: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Surrogate compound percent recovery values (%R) were reviewed by recalculation. See the Data Quality Assessment Worksheets for examples of surrogate calculations. The upper and lower surrogate percent recovery limits from the control charts in the DataChem QA Status Report are based upon a standard matrix (ASTM Type II water) surrogate quality control spike. There are no control charts for field sample (natural matrix) surrogate recovery. For data assessment purposes, the surrogate %R values were compared to the limits specified in the three day moving average percent recovery control charts in the DataChem QA Status Report, and the surrogate recovery limits specified in the EPA Contract Laboratory Program (CLP) 3/90 Statement Of Work (SOW). The CLP SOW does not specify recovery limits for two of the USATHAMA-specified surrogate compounds, methylene chloride-d2 and ethylbenzene-d10. For these compounds, a recovery limit of $\pm 20\%$ (80% to 120% recovery range) was used to assess the field sample results.

All surrogate recovery values were within the limits specified by the EPA CLP 3/90 SOW. For surrogate compounds not specified in the EPA CLP 3/90 SOW, all recovery values fell within the 80% to 120% acceptance range. All surrogates satisfied USAEC criteria.

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses: ACCEPTABLE/All criteria met.

All spiking compounds in the MS/MSD analyses satisfied EPA percent recovery (%R) and RPD criteria. No calculation or transcription errors were found.

7.0 Laboratory Control Sample (LCS): ACCEPTABLE/All criteria met.

Laboratory sample QC-39459-1 was analyzed with acceptable %R results.

8.0 Internal Standards Performance: ACCEPTABLE/All criteria met.

Analysis of areas and retention times for internal standards was conducted (see Data Quality Assessment Worksheets). No quality control criteria for internal standards are specified in USATHAMA PAM 11-41 or the laboratory method. For data assessment purposes, the criteria from EPA National Functional Guidelines was used to assess the internal standards.

All internal standard areas were within the acceptance window of 50% to 200% of the continuing calibration internal standard area. All retention times were within ± 30 seconds of the continuing calibration internal standard retention time.

9.0 Compound Identification: ACCEPTABLE/All criteria met.

Target compounds were not detected in the samples. Compound identifications from the method blank and spiked analyses were reviewed and are acceptable.

10.0 Compound Quantitation and Certified Reporting Limits (CRL):
ACCEPTABLE/All criteria met.

The quantitation of target analytes were reviewed by recalculation. See the Data Quality Assessment Worksheets for examples of compound quantitation. All compound quantitations were performed correctly. The certified reporting limits met those listed in Method LM23. No transcription errors were noted.

11.0 Unknown Compounds: NONE REPORTED.

No unknown compounds were reported with the samples in this lot.

12.0 System Performance: ACCEPTABLE/All criteria met.

No signs of degraded instrument performance were observed. The analytical system was judged to have been in tune, within control, and stable during the course of these analyses.

V. OVERALL ASSESSMENT/QC SUMMARY

Based on this evaluation, the laboratory followed the specified analytical method.

Laboratory precision was acceptable according to MS/MSD RPD values. Accuracy was acceptable, as demonstrated by surrogate spike and MS recovery values.

The DataChem QA Status Report noted that downward trends were present for the recovery values of ethylbenzene-d10 and methylene chloride-d8. The laboratory and the USAEC Control Chart Response recommends that Lot ANRP be accepted. As all recovery values (for surrogate and spike compounds) were within the EPA and control chart acceptance limits, the above noted trends do not have any affect on the data.

The data, as qualified, are acceptable for use.

SEMIVOLATILE ORGANIC ANALYSES: SOIL
METHOD: LM25
Lot No.: ANQQ

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANQQ were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. Sample moisture data was provided on the transfer file, but moisture raw data logbook pages were not provided. Results for MS/MSD analyses have been included although they are not required by USATHAMA 11-41 for Class 1A analyses. Transfer files, DataChem QA Status Reports and USAEC Control Chart Response were provided. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANQQ. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions. All samples listed on ANQQ chain-of-custody forms were analyzed.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANQQ. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. Field Quality Control

No field quality control samples (field replicates, field blanks, or trip blanks) were submitted with Lot ANQQ.

IV. TECHNICAL ASSESSMENT

1.0 Sample Holding Times: ACCEPTABLE/All criteria met.

The extraction holding time criterion listed in Method LM25 for semivolatiles in a soil matrix is 14 days from date sampled to extraction date. The analytical holding time criterion listed in Method LM25 for soil matrices is 40 days from extraction date to date of analysis. All soil

samples were extracted within five days from the date of sampling, and analyzed within twelve days of the date of extraction.

2.0 GC/MS Instrument Performance Check: ACCEPTABLE/All criteria met.

DFTPP was analyzed at the beginning of each twelve hour analytical sequence as required. All DFTPP data were provided, and all results were within the specified control limits.

3.0 Initial and Daily Calibration: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table

Discussion:

The initial calibration was performed at the proper frequency. Six standards were used, meeting USATHAMA PAM 11-41 criterion for Class 1A. Relative response factors (RRF) and percent relative standard deviation (%RSD) values were verified by recalculation. No calculation or transcription errors were noted. During data assessment, only positive results in the associated samples would be qualified on the basis of outlying curve linearity (indicated by %RSD values above 30%). All positive results were associated with acceptable compound curves. No action required.

Several compounds (heptachloroepoxide, chlordane and endosulfan II) had RRF values below the 0.05 lower control limit. These compounds are not consistently recoverable using GCMS methods, and historically have very low response factors. However, these compounds had acceptable %RSD values, indicating a stable response, and all RRF values were above 0.01. No action was taken.

Four compounds (PCB-1016, PCB-1260, PCB-1262, and toxaphene) were not included in the initial calibration, any daily calibration, and were not part of the list of compounds scanned for in any sample. These compounds were reported on the transfer files as LT (less than) values, with no laboratory flags. As these compounds were not scanned for (except as unknown compounds), the reporting limits (CRL) are rejected (R).

Continuing calibrations (CCAL) were run at the correct frequency (before and after sample analyses). All daily calibrations met the Method LM25 criteria. All of the CCAL had compounds with percent difference (%D) values greater than the $\pm 25\%$ control limits. A list of all %D outliers is in the Data Validation Worksheet. There were no positive results for any of these compounds in the samples. The detection limits (CRL) were judged not significantly affected, and no action was taken. All other %D values were acceptable.

4.0 Blank Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table

Discussion:

A method blank was analyzed at the required frequency. No target compounds were detected in the method blank. Several unknown compounds were detected. A list of all compounds detected in the method blank is in the Data Quality Assessment Worksheet. Action levels were established at ten times the concentration in the blank. Unknown compounds that were detected in the samples at concentrations less than the action levels were rejected (R). The unknown compounds were verified using the scan number, retention times, and a comparison of the mass spectra.

No field or equipment blanks were submitted with this lot.

5.0 Surrogate Recovery: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Surrogate compound percent recoveries (%R) were reviewed by recalculation. See the Data Quality Assessment Worksheets for examples of surrogate calculations. The upper and lower surrogate percent recovery limits from the control charts in the DataChem QA Status Report are based upon a standard matrix (ASTM Type II water) surrogate quality control spike. There are no control charts for field sample (natural matrix) surrogate recovery. For data assessment purposes, the surrogate percent recoveries were compared to the limits specified in the three day moving average percent recovery control charts in the DataChem QA Status Report, and the surrogate recovery limits specified in the EPA Contract Laboratory Program (CLP) 3/90 Statement Of Work (SOW). The CLP SOW does not specify recovery limits for two of the USATHAMA-specified surrogate compounds, di-n-octyl phthalate-d4 and diethylphthalate-d4. For these compounds, a recovery range of 20% to 130% was used to assess the field sample results. The range is the same as the range recommended in the CLP SOW for new surrogate compounds.

One surrogate standard (di-n-octyl phthalate-d4) had percent recovery values above the 130% upper control limit (UCL) criterion in the blank and four samples. These samples also had high recoveries for diethyl phthalate-d4. Although these surrogate compounds are both part of the base-neutral fraction, these compounds are not discussed in the EPA CLP 3/90 SOW. The 130% upper control limit was established during the data quality assessment as a recommended control limit. As all other surrogates (both base-neutral and acid fractions) had percent recovery values within the specified EPA CLP 3/90 SOW control limits, no action was taken on the basis of the phthalate surrogate recovery outliers. For surrogate compounds not specified in the, all other recoveries fell within the 20% to 130% recovery range.

In the 13 field and QC sample analyses, 11 analyses each had from one to three percent recovery values outside the acceptance range specified in the DataChem QA Status Report control charts. The samples and the surrogate outliers are listed in the Data Quality Assessment Worksheet. As the surrogate percent recoveries met the CLP limits (except as noted above), and as the surrogate

recoveries were not significantly outside the control chart limits, no qualifiers were issued to the samples based on control chart surrogate percent recovery outliers.

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses:
ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

MS/MSD analyses were submitted with lot ANQQ. MS/MSD analyses were performed using Sample TDP-94-05B. The percent recovery values for 2,4-dinitrotoluene were 102% in the MS and 103% in the MSD, above the upper control limit of 89%. No action was taken. All other percent recovery (%R) values are within the control limits specified in the EPA CLP 3/90 SOW, indicating an acceptable degree of accuracy. All relative percent difference (RPD) values are eight percent or less, indicating an acceptable degree of precision.

7.0 Field Duplicates: NOT SUBMITTED

Field duplicate samples were not submitted as part of Lot ANQQ.

8.0 Internal Standards Performance: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Analysis of areas and retention times for internal standards was conducted (see Data Quality Assessment Worksheets). No quality control criteria for internal standards are specified in USATHAMA PAM 11-41 or the laboratory method. For data assessment purposes, the criteria from U.S. EPA National Functional Guidelines was used to assess the internal standards.

All internal standard areas were within the acceptance window of 50% to 200% of the continuing calibration internal standard area. All retention times were within ± 30 seconds of the continuing calibration internal standard retention time.

9.0 Compound Identification: ACCEPTABLE/All criteria met.

All compound identifications were reviewed and are found to be acceptable.

10.0 Compound Quantitation and Certified Reporting Limits (CRL):
ACCEPTABLE/All criteria met.

There were no positive results for any target compounds in the samples. Surrogate and matrix spiking compound quantitation were recalculated using the method described in the CLP SOW, with results similar to those reported by the laboratory. The compound quantitations were

judged to be acceptable. The reported CRL met those listed in Method LM25. No transcription errors were found.

11.0 Unknown Compounds: ACCEPTABLE/With the following qualification.

Qualified Data: See Section 4.0. All other unknown compounds were qualified JN.

Discussion:

Mass spectral library searches to identify unknown (non-target) compounds were performed as required, and all reported identifications were acceptable. As discussed in Section 4.0, unknown compounds in a sample that were also detected in the associated method blank were rejected (R). All other unknown compounds are qualified as estimated with tentative identification (JN).

12.0 System Performance: ACCEPTABLE/All criteria met.

No signs of degraded instrument performance were observed. The analytical systems were judged to have been in tune, within control, and stable during the course of these analyses.

13.0 OVERALL ASSESSMENT/QC SUMMARY

Based on this evaluation, the laboratory followed the specified analytical method.

Accuracy is acceptable, as demonstrated by the %R values of surrogate and matrix spike recoveries. Precision is acceptable on the basis of MS/MSD RPD values.

The DataChem QC Status report notes the following trends were found in Lot ANQQ: terphenyl-d14 recoveries are trending below the mean, and 2-chlorophenol-d4, 2-fluorobiphenyl, 2-fluorophenol, diethyl phthalate-d4, nitrobenzene-d5 and phenol-d6 recoveries were going in a downward direction. The individual outlier listed was a low recovery for 2-fluorobiphenyl. One compound (1,3-dichlorobenzene-d4) was flagged as being above the range UCL, although the percent recovery was acceptable. The DataChem QA Status Report recommends that Lot ANQQ be accepted. The USAEC Control Chart Response letter accepts Lot ANQQ with no comments. The above noted trends and outliers have no significant impact upon the reported data.

Data qualifiers were assigned due to calibration outliers (compounds not included in the calibration) and blank contamination. Unknown (non-target) compounds that were not qualified due to blank contamination received a JN flag.

Data that are rejected are unusable for any purpose. All other data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANQQ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
UNK530	UNK530	R	TDP-94-05B	0.8	< Action Level	4
UNK537	UNK537	R	TDP-94-05B	0.3	< Action Level	4
UNK643	UNK643	R	TDP-94-05B	0.3	< Action Level	4
UNK530	UNK530	R	TDP-94-06A	1.0	< Action Level	4
UNK537	UNK537	R	TDP-94-06A	0.4	< Action Level	4
UNK643	UNK643	R	TDP-94-06A	1.0	< Action Level	4
UNK530	UNK530	R	TDP-94-06B	0.6	< Action Level	4
UNK537	UNK537	R	TDP-94-06B	0.3	< Action Level	4
UNK530	UNK530	R	TDP-94-07A	0.8	< Action Level	4
UNK537	UNK537	R	TDP-94-07A	0.8	< Action Level	4
UNK643	UNK643	R	TDP-94-07A	0.3	< Action Level	4
UNK530	UNK530	R	TDP-94-07B	0.6	< Action Level	4
UNK537	UNK537	R	TDP-94-07B	0.3	< Action Level	4
UNK643	UNK643	R	TDP-94-07B	0.5	< Action Level	4
UNK530	UNK530	R	TDP-94-03A	0.4	< Action Level	4
UNK537	UNK537	R	TDP-94-03A	0.4	< Action Level	4
UNK530	UNK530	R	TDP-94-03B	0.6	< Action Level	4
UNK537	UNK537	R	TDP-94-03B	0.5	< Action Level	4
UNK643	UNK643	R	TDP-94-03B	0.7	< Action Level	4
UNK530	UNK530	R	TDP-94-04A	0.5	< Action Level	4
UNK537	UNK537	R	TDP-94-04A	0.3	< Action Level	4
UNK530	UNK530	R	TDP-94-04B	0.5	< Action Level	4
UNK537	UNK537	R	TDP-94-04B	0.3	< Action Level	4
UNK643	UNK643	R	TDP-94-04B	0.5	< Action Level	4
UNK530	UNK530	R	TDP-94-05A	0.5	< Action Level	4
PCB 1016	PCB016	R	All Samples	CRL = 0.32	Analytes not scanned	3
PCB 1260	PCB260	R	All Samples	CRL = 0.79	Analytes not scanned	3
PCB 1262	PCB262	R	All Samples	CRL = 6.3	Analytes not scanned	3
Toxaphene	TXPHEN	R	All Samples	CRL = 12	Analytes not scanned	3



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

**TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003**

**SWMU 22
BUILDING 1303 WASHOUT POND**

Prepared for:

RUST Environment and Infrastructure
743 Horizon Court, Suite 240
Grand Junction, Colorado 81506

Prepared by:

EcoChem, Inc.
801 Second Avenue, Suite 1401
Seattle, Washington 98104

EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:

Geni A. Floyd for

Mark T. Brindle
Project Manager
EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 22	Cyanide	ANLG	KY15 (SOIL)	Jason Ai	W. Jaime Bruton
	ICP Metals	ANWJ	JS12 (SOIL)	Jason Ai	W. Jaime Bruton

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

- | | |
|---|--|
| U | The material was analyzed for, but was not detected.
The associated numerical value is the certified reporting limit. |
| R | Unreliable result. Data should not be used. Analyte may or may not be present in the sample. |

DATA QUALITY ASSESSMENT
CYANIDE ANALYSES: SOIL
METHOD: KY15
Lot No.: ANLG

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANLG were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody (COC) forms for Lot ANLG were completed properly, and all samples listed in the COC forms were analyzed. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for Lot ANLG samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. A minimum of 10% of the field ID and laboratory ID were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QC SUMMARY

One set of field duplicate samples (BWS-94-09/BWS-94-18) was analyzed and reviewed. Cyanide was not detected in these two samples. The relative percent difference (RPD) value for this set of field duplicate samples was not calculable.

No field blank was submitted with Lot ANLG samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 14 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

For the initial calibration, the minimum number of standards were used, which met the method criterion. The linearity requirement of $r \geq 0.995$ was met. The laboratory analyzed a continuing calibration standard every ten samples as required. All percent recovery (%R) values of initial and continuing calibration verifications were within the control limits of 90% to 110%.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

Calibration blanks (ICB and CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration standard as required. Preparation blanks were prepared with each digestion batch as required. No target analytes were detected in the blanks at or above the reporting limits.

4.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/All criteria met.

One set of MS/MSD analyses was performed on Sample BWS-94-01. The %R values for cyanide were 100.6% and 98.7%, which were within the control limits of 75% to 125%. The RPD value for this MS/MSD set was 1.9%, which was within the control limit of 35%.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion

Two high spike and one low spike analyses were performed with each sample lot. The %R values of both high spike analyses were 101.1% and 103.0%, which were slightly greater than the control chart upper limit of 99.9%. Since these percent recovery values were within the control limits specified in the Functional Guidelines (2/94), no action was taken. The %R values of the low spike analysis was 94.8%, which was within the control chart limits of 68.8% to 106.2%.

6.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limits for cyanide were reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

7.0 Calculations: ACCEPTABLE/All criteria met.

Cyanide was not detected in any of the samples. No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAES Chemistry Branch Response indicates that Lot ANLG is acceptable. The laboratory noted high spike recovery values above the control chart upper limit for cyanide. No qualification is recommended based on these observations.

All data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
LOT NO.: ANWJ**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANWJ were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANWJ. All Lot ANWJ samples listed on the chain-of-custody were analyzed. Transcription errors were found in Samples BRB-94-12A, BRB-94-12B, and BRB-94-12C. These sample IDs were incorrectly reported as BRP-94-12A, BRP-94-12B, and BRP-94-12C. in the laboratory chain-of-custody, transfer file printout, and raw data. The laboratory was contacted and corrected forms have not yet been received from the laboratory. All other sample IDs were tracked from the field chain-of-custody to the transfer file printout and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample.

III. FIELD QUALITY CONTROL

No field blanks or field duplicate samples were submitted with Lot ANWJ samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of a percent recovery (%R) for thallium at 127.2%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The %R of the CCV were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated samples. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit, and no PB result was greater than the reporting limit. Aluminum, barium, calcium, chromium, iron, potassium, magnesium, manganese, vanadium, and zinc were detected in one QC blank (BL-39714-1). Since this soil blank sample (from RMA soil, R3D-381) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANWJ-1.

Discussion:

MS/MSD analyses were performed on Samples OSP-94-05A and BRB-94-12A. The MS %R value for chromium in the first set of MS/MSD analyses was 74%, which was slightly less than the lower control limit of 75%. Since the MSD %R value and relative percent difference (RPD) values were within the control limits, no action was recommended. The antimony %R values in both MS/MSD analyses were 0%, which indicates antimony analyses by ICP method were questionable. Antimony was not detected in any of the samples leading to a possibility of false non-detects. The quantitation limits for antimony were rejected and not usable for any purposes. All other %R values and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: See Qualified Data Summary Table ANWJ-1.

Discussion:

One low spike and two high spike analyses were performed with this sample lot. Recovery values were evaluated based on the control chart upper and lower limits. The %R of low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Beryllium	Acceptable	92.5% to 105.1%	99%	100%	94.2% to 98.8%
Cadmium	Acceptable	86.6% to 107.8%	98%	100%	92.4% to 97.2%
Cobalt	Acceptable	94.8% to 124.2%	Acceptable	103%	95.0% to 102.2%
Chromium	Acceptable	90.3% to 111.5%	101%	102%	96.6% to 100.4%
Copper	Acceptable	104.8% to 121.8%	Acceptable	101%	95.2% to 100.4%
Nickel	Acceptable	88.8% to 126.2%	Acceptable	101%	94.0% to 100.8%
Lead	Acceptable	88.9% to 116.9%	102%	104%	95.1% to 100.3%
Antimony	Acceptable	45.1% to 75.9%	Acceptable	87.8%	79.1% to 87.7%
Vanadium	42.0%	69.2% to 127.8%	Acceptable	Acceptable	92.8% to 101.4%
Zinc	76.7%	88.5% to 104.7%	Acceptable	Acceptable	93.7% to 100.3%

The vanadium low spike %R value was less than both the USAEC control limit and the control limit specified in Functional Guidelines (2/94). Vanadium results in field samples that were less than the high spike concentration (30 µg/g) were considered biased low and were qualified as estimated. Since both vanadium high spike %R values were within the control limits, vanadium results greater than the high spike concentration were acceptable and no other qualifications are recommended.

All other spike recovery values were close to the USAEC control limits and still within the control limit specified in Functional Guidelines (2/94), no other qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANWJ is partially acceptable. The laboratory noted high spike recovery values trending above the central line for cadmium and lead; high spike recovery values moving in a downward direction for chromium; low spike range trending above the central line for boron, beryllium, and lead; low spike recovery values trending below the central line for copper and molybdenum; low spike recovery values moving in an upward direction for cobalt, tin, tellurium and thallium; low spike recovery values moving in a downward direction for molybdenum, nickel, lead, vanadium and zinc; and low spike recovery values less than the control chart lower limits for vanadium and zinc.

Vanadium was flagged with a "7" by the laboratory indicating low spike recovery. All vanadium results that were less than the high spike concentration (30 µg/g) should be considered biased low and qualified. The zinc low spike %R value was 76.7%, which was less than the control chart lower limit of 88.5%, but within the Functional Guidelines (2/94) control limits of 75% to 125%. No qualification was recommended. No other qualifications are recommended on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANWJ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	OSP-94-05A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-05B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-05C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-09A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-09B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Vanadium	V	J	OSP-94-05A	21.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-05B	13.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-05C	10.6 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06A	21.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06B	13.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06C	16.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-01A	10.6 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-01B	15.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-02A	10.9 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-02B	7.33 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-03A	10.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-03B	20.4 ug/g	LS %R = 42.2%	6

Qualified Data Summary Table Lot No: ANWJ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Vanadium	V	J	BWB-94-03C	7.85 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12A	15.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12B	22.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12C	14.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03A	21.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03B	15.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03C	11.4 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-09A	12.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-09B	10.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07A	21.9 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07B	10.4 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07C	6.88 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01A	20.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01B	14.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01C	18.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13A	12.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13B	6.10 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13C	4.34 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02A	12.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02B	21.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02C	8.52 ug/g	LS %R = 42.2%	6



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003

SWMU 23
BOMB AND SHELL RECONDITIONING BUILDING

Prepared for:

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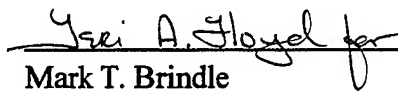
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


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EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 23	Arsenic	ANWH	B9 (SOIL)	Jason Ai	W. Jaime Bruton
	PCBs	ANVA	LH17 (SOIL)	Marcia Bender	Eric Strout
	ICP Metals	ANWJ	JS12 (SOIL)	Jason Ai	W. Jaime Bruton

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: SWMU 23—BOMB AND SHELL RECONDITIONING BUILDING

Arsenic

One lot of arsenic analyses of soil samples using Method B9 was reviewed. Data were found to be acceptable for use without qualification.

PCBs

One lot of PCB analyses of soil samples using Method LH17 was reviewed. Data were found to be acceptable for use without qualification.

ICP-Metals

One lot of ICP-metal analyses of soil samples using method JS12 was reviewed. All vanadium results less than the high spike concentration were qualified as estimated. These results are considered biased low by approximately 40% and the qualified results are slightly less precise than unqualified data. Qualification was recommended by both USAEC and EcoChem.

All antimony detection limits were rejected because of zero antimony recovery in the natural (matrix) spikes. This indicates the possibility of false negatives. The USAEC did not flag this problem because natural spikes are not part of the USAEC QA program; however, they recommend against using Method JS12 for antimony in soil samples because of known poor recovery problems.

Zinc data was qualified as estimated by the USAEC due to low spike recovery. Since the spike recovery was acceptable under Functional Guidelines, we recommend accepting the data without qualification. The results should be considered acceptable for all uses with the understanding that the results are potentially biased low by approximately 25%.

**DATA QUALITY ASSESSMENT
ARSENIC—GFAA ANALYSES: SOIL
METHOD: B9
Lot No.: ANWH**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANWH were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody (COC) forms for Lot ANWH were completed properly, and all samples listed in the COC forms were analyzed. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for Lot ANWH samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. A minimum of 10% of the field ID and laboratory ID were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QC SUMMARY

Two sets of field duplicate samples (BRP-94-09C/BRP-94-18C and OSP-94-04C/OSP-94-07A) were analyzed and reviewed. The relative percent difference (RPD) values for these two sets of field duplicate samples were 4.9% and 6.9%, respectively.

No field blanks were submitted with Lot ANWH samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

For the initial calibration, the minimum number of standards were used, which met the method criterion. The linearity requirement of $r \geq 0.995$ was met. The laboratory analyzed a continuing calibration standard every ten samples as required. All percent recovery (%R) values of initial and continuing calibration verifications were within the control limits of 90% to 110%.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

Calibration blanks (ICB and CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. Preparation blanks were prepared with each digestion batch as required. No target analytes were detected in the blanks at or above the reporting limits.

4.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Two sets of MS/MSD analyses were performed on Samples OSP-94-01A and BRB-94-16A. The %R values for the first set of MS/MSD analyses were 196.0% and 55.0%, which were both outside the Functional Guidelines (2/94) control limit of 75% to 125%. The RPD value for the first set of MS/MSD analyses was 112.4%, which was greater than the control limit of 35%. The %R values for the second MS/MSD set were 80.7% (within control limits), and 69.7%, (less than the control limit). The RPD value for the second set of MS/MSD analyses was 14.6%, which was within the control limit of 35%.

Since MS/MSD analyses were not required in the USATHAMA program and high and low spike recovery values were within the control limits, arsenic results were not qualified due to low or high percent recovery values. However, arsenic results should be considered as estimated.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/All criteria met.

Two high spike and one low spike analyses were performed with each sample lot. The percent recovery values of both high spike analyses were 95.7% and 94.3%, which were within the control chart limits of 86.9% to 109.5%. The percent recovery value of the low spike analysis was 103.9%, which was within the control chart limit of 92.0% to 104.2%.

6.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limits for arsenic were reviewed. All reporting limits match the certified reporting limit listed in the laboratory SOP.

7.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANWH is acceptable. The laboratory noted high spike recovery values moving in an upward direction, and low spike recovery values trending above the mean. No qualification is recommended based on these observations.

The data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
PCB ANALYSES: SOIL
METHOD: LH17
LOT No.: ANVA**

I. DELIVERABLES AND DOCUMENTATION

Method LH17 is certified for pesticide/PCB compounds in soil. For Lot ANVA, only PCB compound analyses were requested, so a modified Method LH17 was used, reporting PCB compounds only.

All necessary documentation for Lot ANVA were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. Transfer files, the DataChem QA Status Report, and USAEC Control Chart Response were also provided.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANVA. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions. All samples listed on the field chain-of-custody forms were analyzed, with the exception of one equipment rinsate sample, 3ER-39.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANVA. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field ID and laboratory ID for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. Discrepancies were not found.

III. FIELD QUALITY CONTROL

Sample 3ER-39 was identified on the field chain-of-custody form as a field equipment rinsate sample. This sample was not analyzed with Lot ANVA. No other field QC samples were identified.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples were extracted within seven days of collection and were analyzed within 17 days of extraction. The USATHAMA PAM 11-41-required extraction holding time limit of seven days and analysis holding time of 40 days were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for PCB compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%. Percent difference (%D) values for PCB compounds were reported by the laboratory. All %D values were within control limits.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One method blank was associated with the samples in this lot. Target PCB compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike / Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory performed MS/MSD analyses at a frequency of one pair per 20 samples. MS/MSD analysis was performed on Sample BRB-94-16A. Aroclor 1016 and 1260 were contained in the spiking solution. Upper and lower control limits for the measurements of accuracy and precision for Aroclor spikes are not formalized; percent recovery values (%R) were within 35% R and relative percent difference values (RPD) were within 15 RPD and were judged acceptable.

6.0 High Spike Analysis: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion

One high spike analysis was performed with this sample lot. The percent recovery values of the high spike analysis were less than the control limits. However, for both target analytes analyzed in the high spike, the percent recovery values were slightly above the upper warning limit. No action was taken.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot ANVA were reviewed for PCB compounds; no false negatives or false positives were found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limit (CRL):
ACCEPTABLE/All criteria met.

Non-target PCB compounds were detected above the CRL in two samples. Compound quantitation was verified by recalculation, and no problems were found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion

The chromatogram quality was acceptable for the primary column. On the confirmation column, there was a baseline drift during the middle portion of the analyses. The baseline was manually drawn by the analyst. The baseline drift could result in a low bias; however, as the column was used for compound confirmation only, no data were affected and no action was taken.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found. An examination of the DataChem QA Status Report that includes Lot ANVA revealed no values outside of control limits. The USAEC Control Chart Response accepts Lot ANVA with no comment.

Accuracy was generally acceptable, as demonstrated by the percent recovery values of the spiked compounds. Precision was acceptable, as demonstrated by the low RPD values of the MS/MSD set.

The data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
LOT No.: ANWJ**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANWJ were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANWJ. All Lot ANWJ samples listed on the chain-of-custody were analyzed. Transcription errors were found in Samples BRB-94-12A, BRB-94-12B, and BRB-94-12C. These sample IDs were incorrectly reported as BRP-94-12A, BRP-94-12B, and BRP-94-12C. in the laboratory chain-of-custody, transfer file printout, and raw data. The laboratory was contacted and corrected forms have not yet been received from the laboratory. All other sample IDs were tracked from the field chain-of-custody to the transfer file printout and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample.

III. FIELD QUALITY CONTROL

No field blanks or field duplicate samples were submitted with Lot ANWJ samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of a percent recovery (%R) for thallium at 127.2%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The %R of the CCV were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated samples. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit, and no PB result was greater than the reporting limit. Aluminum, barium, calcium, chromium, iron, potassium, magnesium, manganese, vanadium, and zinc were detected in one QC blank (BL-39714-1). Since this soil blank sample (from RMA soil, R3D-381) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANWJ-1.

Discussion:

MS/MSD analyses were performed on Samples OSP-94-05A and BRB-94-12A. The MS %R value for chromium in the first set of MS/MSD analyses was 74%, which was slightly less than the lower control limit of 75%. Since the MSD %R value and relative percent difference (RPD) values were within the control limits, no action was recommended. The antimony %R values in both MS/MSD analyses were 0%, which indicates antimony analyses by ICP method were questionable. Antimony was not detected in any of the samples leading to a possibility of false non-detects. The quantitation limits for antimony were rejected and not usable for any purposes. All other %R values and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: See Qualified Data Summary Table ANWJ-1.

Discussion:

One low spike and two high spike analyses were performed with this sample lot. Recovery values were evaluated based on the control chart upper and lower limits. The %R of low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Beryllium	Acceptable	92.5% to 105.1%	99%	100%	94.2% to 98.8%
Cadmium	Acceptable	86.6% to 107.8%	98%	100%	92.4% to 97.2%
Cobalt	Acceptable	94.8% to 124.2%	Acceptable	103%	95.0% to 102.2%
Chromium	Acceptable	90.3% to 111.5%	101%	102%	96.6% to 100.4%
Copper	Acceptable	104.8% to 121.8%	Acceptable	101%	95.2% to 100.4%
Nickel	Acceptable	88.8% to 126.2%	Acceptable	101%	94.0% to 100.8%
Lead	Acceptable	88.9% to 116.9%	102%	104%	95.1% to 100.3%
Antimony	Acceptable	45.1% to 75.9%	Acceptable	87.8%	79.1% to 87.7%
Vanadium	42.0%	69.2% to 127.8%	Acceptable	Acceptable	92.8% to 101.4%
Zinc	76.7%	88.5% to 104.7%	Acceptable	Acceptable	93.7% to 100.3%

The vanadium low spike %R value was less than both the USAEC control limit and the control limit specified in Functional Guidelines (2/94). Vanadium results in field samples that were less than the high spike concentration (30 µg/g) were considered biased low and were qualified as estimated. Since both vanadium high spike %R values were within the control limits, vanadium results greater than the high spike concentration were acceptable and no other qualifications are recommended.

All other spike recovery values were close to the USAEC control limits and still within the control limit specified in Functional Guidelines (2/94), no other qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANWJ is partially acceptable. The laboratory noted high spike recovery values trending above the central line for cadmium and lead; high spike recovery values moving in a downward direction for chromium; low spike range trending above the central line for boron, beryllium, and lead; low spike recovery values trending below the central line for copper and molybdenum; low spike recovery values moving in an upward direction for cobalt, tin, tellurium and thallium; low spike recovery values moving in a downward direction for molybdenum, nickel, lead, vanadium and zinc; and low spike recovery values less than the control chart lower limits for vanadium and zinc.

Vanadium was flagged with a "7" by the laboratory indicating low spike recovery. All vanadium results that were less than the high spike concentration (30 µg/g) should be considered biased low and qualified. The zinc low spike %R value was 76.7%, which was less than the control chart lower limit of 88.5%, but within the Functional Guidelines (2/94) control limits of 75% to 125%. No qualification was recommended. No other qualifications are recommended on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANWJ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	OSP-94-05A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-05B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-05C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-09A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-09B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Vanadium	V	J	OSP-94-05A	21.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-05B	13.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-05C	10.6 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06A	21.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06B	13.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06C	16.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-01A	10.6 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-01B	15.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-02A	10.9 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-02B	7.33 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-03A	10.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-03B	20.4 ug/g	LS %R = 42.2%	6

Qualified Data Summary Table Lot No: ANWJ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Vanadium	V	J	BWB-94-03C	7.85 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12A	15.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12B	22.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12C	14.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03A	21.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03B	15.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03C	11.4 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-09A	12.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-09B	10.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07A	21.9 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07B	10.4 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07C	6.88 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01A	20.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01B	14.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01C	18.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13A	12.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13B	6.10 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13C	4.34 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02A	12.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02B	21.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02C	8.52 ug/g	LS %R = 42.2%	6



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

**TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003**

**SWMU 31
FORMER TRANSFORMER BOXING AREA**

Prepared for:

RUST Environment and Infrastructure
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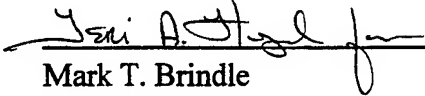
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


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Project Manager
EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 31	ICP Metals	ANUC	JS12 (SOIL)	Jason Ai	W. Jaime Bruton
	SVOC	ANFR	LM25 (SOIL)	Bruce Tiffany	Eric Strout

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: SWMU 31—FORMER TRANSFORMER BOXING AREA

ICP-Metals

One lot of ICP-metal analyses of soil samples using method JS12 were reviewed. All antimony detection limits were rejected because of zero antimony recovery in the natural (matrix) spikes. This indicates the possibility of false negatives. The USAEC did not flag this problem because natural spikes are not part of the USAEC QA program; however, they recommend against using Method JS12 for antimony in soil samples because of known poor recovery problems.

Semivolatile Organic Compounds

One lot of semivolatile organic compound (SVOC) analyses of soil samples using Method LM25 was reviewed. Bis(2-ethylhexyl)phthalate and several unknowns were qualified due to blank contamination. Hexachloro cyclopentadiene results (all non-detects) were qualified as estimated due to decreased sensitivity during continuing calibration. Three PCB aroclors (PCB 1016, 1260, and 1262) and toxaphene were reported as less than the CRL ("LT") with no flag or qualifying code. Because they were not analyzed for in the samples, the results should be qualified as rejected.

All other SVOC are acceptable for use as reported.

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
LOT No.: ANUC**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANUC were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANUC. All Lot ANUC samples listed on the chain-of-custody were analyzed. Sample IDs were tracked from the field chain-of-custody to the transfer file printout and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample. No errors in field IDs were noted.

III. FIELD QUALITY CONTROL

One set of field duplicate samples (TBS-94-09/TBS-94-22) was analyzed and reviewed. The relative percent difference (RPD) values for this set of field duplicate samples ranged from 0.4% to 15.2%, which were within the control limit of 50%.

No field blanks were submitted with Lot ANUC samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of thallium with a percent recovery (%R) value of 120.4%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The percent recovery of the CCVs were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit, and no PB result was greater than the reporting limit. Aluminum, barium, calcium, chromium, iron, potassium, magnesium, manganese, vanadium and zinc were detected in one QC blank (BL-38668-1). Since this soil blank sample (from RMA soil, R3D-381) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANUC-1.

Discussion:

Two sets of MS/MSD analyses were performed on Samples CRS-94-01 and CRS-94-14. The antimony %R values in both MS/MSD analyses were 0% which indicates antimony analyses by ICP method were questionable. As antimony was not detected in any of the samples a possibility of false non-detects exists. The quantitation limits for antimony were rejected and not usable for any purposes. All other %R and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

One low spike and two high spike analyses were performed with this sample lot. Recovery values were evaluated based on the control chart upper and lower limits. The %R values of low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Beryllium	Acceptable	92.5% to 105.1%	Acceptable	93.7%	94.5% to 100.5%
Vanadium	Acceptable	59.0% to 120.4%	Acceptable	92.7%	92.8% to 101.4%

As these spike recovery values were close to the USAEC control limits and still within the control limit specified in Functional Guidelines (2/94), no qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits match the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANUC is acceptable. The laboratory noted high spike recovery values trending above the central line for cadmium and lead; high spike recovery values moving in a downward direction for chromium; low spike recovery values above the central line for boron, beryllium, and lead; low spike recovery values trending below the central line for copper and molybdenum; low spike recovery values moving in an upward

direction for cobalt, tin, tellurium, and thallium; and low spike recovery values moving in a downward direction for molybdenum, nickel, lead, and vanadium. No other qualification is recommended based on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANUC

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	CRS-94-01	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-02	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-03	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-04	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-05	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-06	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-07	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-08	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-09	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-10	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-11	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-12	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-13	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-14	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-15	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-16	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-17	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	CRS-94-18	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-29	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-30	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-31	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OBS-94-32	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-09	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-12	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-15	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-18	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-21	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-22	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-03	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TBS-94-06	LT 19.6 ug/g	MS/MSD %R = 0%	5

SEMIVOLATILE ORGANIC ANALYSES: SOIL
METHOD: LM25
LOT No.: ANFR

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANFR were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. Sample moisture data was provided on the transfer file, but moisture raw data logbook pages were not provided. Results for MS/MSD analyses have been included although they are not required by USATHAMA 11-41 for Class 1A analyses. Transfer files, DataChem QA Status Reports and USAEC Control Chart Response were provided. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANFR. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions. All samples listed on ANFR chain-of-custody forms were analyzed.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANFR. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for Samples VGS-94-RL and VGS-94-23 were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. Field Quality Control

Two samples were submitted as a field duplicate set (TBS-94-09 and TBS-94-22). Relative percent difference (RPD) values were calculated for all positive results detected in both samples. Field precision is considered acceptable on the basis of low RPD values (<30%). No field or trip blanks were submitted with Lot ANFR.

IV. TECHNICAL ASSESSMENT

1.0 Sample Holding Times: ACCEPTABLE/All criteria met.

The extraction holding time criterion listed in Method LM25 for semivolatiles in a soil matrix is 14 days from date sampled to extraction date. The analytical holding time criterion listed in Method LM25 for soil matrices is 40 days from extraction date to date of analysis. All soil samples were extracted within four days and analyzed within six days of extraction.

2.0 GC/MS Instrument Performance Check: ACCEPTABLE/All criteria met.

DFTPP was analyzed at the beginning of each twelve hour analytical sequence as required. All DFTPP data were provided, and all results were within the specified control limits.

3.0 Initial and Daily Calibration: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table

Discussion:

The initial calibration was performed at the proper frequency. Six standards were used, meeting USATHAMA PAM 11-41 criterion for Class 1A. Relative response factors (RRF) and percent relative standard deviation (%RSD) values were verified by recalculation. No calculation or transcription errors were noted. All %RSD values were below the 30% upper control limit. Several compounds (heptachloroepoxide, chlordane and endosulfan II) had RRF values below the 0.05 lower control limit. These compounds are not consistently recoverable using GCMS methods, and historically have very low response factors. However, these compounds had acceptable %RSD values, indicating a stable response, and all RRF values were above 0.01. No action was taken.

Four compounds (PCB-1016, PCB-1260, PCB-1262, and toxaphene) were not included in the initial calibration, any daily calibration, and were not part of the list of compounds scanned for in any sample. These compounds were reported on the transfer files as LT (less than) values, with no laboratory flags. As these compounds were not scanned for (except as unknown compounds), the reporting limits (CRL) are rejected (R).

Continuing calibrations (CCAL) were run at the correct frequency (before and after sample analyses). All daily calibrations met the Method LM25 criteria. Two of the CCAL had compounds with percent difference (%D) values greater than the $\pm 25\%$ control limits. A list of all %D outliers is in the Data Validation Worksheet. There were no positive results for any of these compounds in the samples. The detection limits (CRL) were judged not significantly affected, with the exception of the hexachlorocyclopentadiene detection limits. This compound had a %D value of 57% in the second CCAL. This %D value indicates a significant loss of instrument sensitivity. As all sample analyses are associated with this CCAL, all

hexachlorocyclopentadiene detection limits are estimated (UJ). All other %D values were acceptable.

4.0 Blank Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table

Discussion:

A method blank was analyzed at the required frequency. Two phthalate esters were detected at levels below the CRL. Several unknown compounds were also detected. A list of all compounds detected in the method blank is in the Data Quality Assessment Worksheet. Action levels were established at ten times the concentration in the blank. One phthalate ester [bis(2-ethylhexyl) phthalate] was detected in Sample TBS-94-22 at a concentration below the action level. This result was qualified as not detected (U) at the reported level. Unknown compounds that were detected in the samples at concentrations less than the action levels were rejected (R). The unknown compounds were verified using the scan number, retention times, and a comparison of the mass spectra.

No field or equipment blanks were submitted with this lot.

5.0 Surrogate Recovery: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Surrogate compound percent recoveries (%R) were reviewed by recalculation. See the Data Quality Assessment Worksheets for examples of surrogate calculations. The upper and lower surrogate percent recovery limits from the control charts in the DataChem QA Status Report are based upon a standard matrix (ASTM Type II water) surrogate quality control spike. There are no control charts for field sample (natural matrix) surrogate recovery. For data assessment purposes, the surrogate percent recoveries were compared to the limits specified in the three day moving average percent recovery control charts in the DataChem QA Status Report, and the surrogate recovery limits specified in the EPA Contract Laboratory Program (CLP) 3/90 Statement Of Work (SOW). The CLP SOW does not specify recovery limits for two of the USATHAMA-specified surrogate compounds, di-n-octyl phthalate-d4 and diethylphthalate-d4. For these compounds, a recovery range of 20% to 130% was used to assess the field sample results. The range is the same as the range recommended in the CLP SOW for new surrogate compounds.

One surrogate standard (di-n-octyl phthalate-d4) had percent recovery values above the 130% upper control limit (UCL) criterion in seven samples. No data qualifiers are recommended unless two or more semivolatile surrogates within the same fraction (acid or base/neutral) are outside the control limits. No action was taken. One acid fraction surrogate (2-fluorophenol)

had a low recovery (3%) in Sample CRS-94-14. The low recovery was caused by a retention time shift in the analysis which favored early elution of the analytes. The surrogate compound (2-fluorophenol) had mainly eluted before the mass spectrometer data acquisition initiated. Comparison of internal standard areas and subsequent surrogate standard recoveries indicate that this temporary change in elution characteristics (retention time shift) had no significant affect upon data quality. As all other acid fraction surrogates were acceptable, no action was taken. All other surrogate recoveries were within the limits specified by the EPA CLP 3/90 SOW. For surrogate compounds not specified in the EPA CLP 3/90 SOW, all other recoveries fell within the 20% to 130% recovery range.

In the 19 field and QC sample analyses, 14 analyses each had from one to three percent recovery values outside the acceptance range specified in the DataChem QA Status Report control charts. The samples and the surrogate outliers are listed in the Data Quality Assessment Worksheet. As the surrogate percent recoveries met the CLP limits (except as noted above), and as the surrogate recoveries were not significantly outside the control chart limits, no qualifiers were issued to the samples based on control chart surrogate percent recovery outliers.

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses:
ACCEPTABLE/All criteria met.

MS/MSD analyses were submitted with lot ANFR. MS/MSD analyses were performed using Sample TBS-94-06. All percent recovery (%R) values are within 80% to 120%, indicating an acceptable degree of accuracy. All relative percent difference (RPD) values are three percent or less, indicating an acceptable degree of precision.

7.0 Field Duplicates: ACCEPTABLE/All criteria met.

Two samples were submitted as a field duplicate set (TBS-94-09 and TBS-94-22). Relative percent difference (RPD) values were calculated for all positive results detected in both samples. Field precision is considered acceptable on the basis of low RPD values (<30%).

8.0 Internal Standards Performance: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Analysis of areas and retention times for internal standards was conducted (see Data Quality Assessment Worksheets). No quality control criteria for internal standards are specified in USATHAMA PAM 11-41 or the laboratory method. For data assessment purposes, the criteria from U.S. EPA National Functional Guidelines was used to assess the internal standards.

One internal standard retention time was outside the acceptance window of plus or minus 30 seconds of the daily calibration internal standard retention time. No data were impacted by this non-compliance, and no action was taken.

All other internal standard areas were within the acceptance window of 50% to 200% of the continuing calibration internal standard area. All other retention times were within ± 30 seconds of the continuing calibration internal standard retention time.

9.0 Compound Identification: ACCEPTABLE/All criteria met.

All compound identifications were reviewed and are found to be acceptable.

10.0 Compound Quantitation and Certified Reporting Limits (CRL):
ACCEPTABLE/All criteria met.

Target compound quantitation were recalculated using the method described in the CLP SOW, with results similar to those reported by the laboratory. The compound quantitations were judged to be acceptable. The reported CRL met those listed in Method LM25. No transcription errors were found.

11.0 Unknown Compounds: ACCEPTABLE/With the following qualification.

Qualified Data: See Section 4.0. All other unknown compounds were qualified JN.

Discussion:

Mass spectral library searches to identify unknown (non-target) compounds were performed as required, and all reported identifications were acceptable. As discussed in Section 4.0, unknown compounds in a sample that were also detected in the associated method blank were rejected (R). All other unknown compounds are qualified as estimated with tentative identification (JN).

12.0 System Performance: ACCEPTABLE/All criteria met.

No signs of degraded instrument performance were observed. The analytical systems were judged to have been in tune, within control, and stable during the course of these analyses.

13.0 OVERALL ASSESSMENT/QC SUMMARY

Based on this evaluation, the laboratory followed the specified analytical method.

Accuracy is acceptable, as demonstrated by the %R values of surrogate and matrix spike recoveries. Precision is acceptable on the basis of MS/MSD RPD values.

The DataChem QC Status report notes that no outliers or trends were found in Lot ANFR. The DataChem QA Status Report recommends that Lot ANFR be accepted. The USAEC Control Chart Response letter accepts Lot ANFR with no comments.

Data qualifiers were assigned due to calibration outliers and blank contamination.

Data that are rejected are unusable for any purpose. All other data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANFR

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
bis(2-ethylhexyl)phthalate	B2EHP	U	TBS-94-22	0.5	< Action Level	4
hexachlorocyclopentadiene	CL6CP	UJ	All samples	0.52	CCal %D > 50% (57.4)	3
PCB 1016	PCB016	R	All Samples	NA	Analytes not scanned for	3
PCB 1260	PCB260	R	All Samples	NA	Analytes not scanned for	3
PCB 1262	PCB262	R	All Samples	NA	Analytes not scanned for	3
toxaphene	TXPHEN	R	All Samples	NA	Analytes not scanned for	3
UNK527	UNK527	R	CRS-94-14	0.6	< Action Level	4
UNK642	UNK642	R	CRS-94-14	0.6	< Action Level	4
UNK663	UNK663	R	CRS-94-14	0.9	< Action Level	4
UNK530	UNK530	R	CRS-94-15	0.3	< Action Level	4
UNK641	UNK641	R	CRS-94-15	0.7	< Action Level	4
UNK663	UNK663	R	CRS-94-15	0.6	< Action Level	4
UNK530	UNK530	R	CRS-94-16	0.3	< Action Level	4
UNK641	UNK641	R	CRS-94-16	0.5	< Action Level	4
UNK663	UNK663	R	CRS-94-16	0.5	< Action Level	4
UNK530	UNK530	R	CRS-94-17	0.4	< Action Level	4
UNK537	UNK537	R	CRS-94-17	0.3	< Action Level	4
UNK537	UNK537	R	CRS-94-17	1	< Action Level	4
UNK641	UNK641	R	CRS-94-17	1	< Action Level	4
UNK663	UNK663	R	CRS-94-17	0.7	< Action Level	4
UNK530	UNK530	R	CRS-94-18	0.3	< Action Level	4
UNK537	UNK537	R	CRS-94-18	0.5	< Action Level	4
UNK641	UNK641	R	CRS-94-18	1	< Action Level	4
UNK663	UNK663	R	CRS-94-18	0.7	< Action Level	4
UNK530	UNK530	R	VGS-94-RL	0.3	< Action Level	4
UNK641	UNK641	R	VGS-94-RL	2	< Action Level	4
UNK663	UNK663	R	VGS-94-RL	2	< Action Level	4
UNK641	UNK641	R	VGS-94-23	4	< Action Level	4
UNK663	UNK663	R	VGS-94-23	1	< Action Level	4
UNK530	UNK530	R	TBS-94-09	0.3	< Action Level	4
UNK641	UNK641	R	TBS-94-09	1	< Action Level	4
UNK530	UNK530	R	TBS-94-12	0.5	< Action Level	4
UNK537	UNK537	R	TBS-94-12	0.3	< Action Level	4
UNK641	UNK641	R	TBS-94-12	1	< Action Level	4
UNK663	UNK663	R	TBS-94-12	0.3	< Action Level	4
UNK530	UNK530	R	TBS-94-15	0.5	< Action Level	4
UNK537	UNK537	R	TBS-94-15	0.5	< Action Level	4
UNK641	UNK641	R	TBS-94-15	1	< Action Level	4
UNK530	UNK530	R	TBS-94-18	0.3	< Action Level	4
UNK537	UNK537	R	TBS-94-18	0.4	< Action Level	4
UNK641	UNK641	R	TBS-94-18	1	< Action Level	4
UNK530	UNK530	R	TBS-94-21	0.3	< Action Level	4
UNK537	UNK537	R	TBS-94-21	0.4	< Action Level	4
UNK641	UNK641	R	TBS-94-21	2	< Action Level	4
UNK530	UNK530	R	TBS-94-22	0.3	< Action Level	4
UNK641	UNK641	R	TBS-94-22	1	< Action Level	4
UNK529	UNK529	R	TBS-94-03	1	< Action Level	4
UNK641	UNK641	R	TBS-94-03	0.9	< Action Level	4
UNK530	UNK530	R	TBS-94-06	0.3	< Action Level	4
UNK641	UNK641	R	TBS-94-06	0.4	< Action Level	4



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003

SWMU 32
PCB SPILL SWMU

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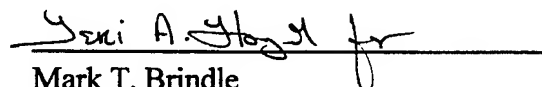
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


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DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 32	ICP Metals	ANVM	JS12 (SOIL)	Jason Ai	W. Jaime Bruton
	SVOC	ANUH	LM25 (SOIL)	Bruce Tiffany	Eric Strout

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

- | | |
|---|--|
| U | The material was analyzed for, but was not detected.
The associated numerical value is the certified reporting limit. |
| R | Unreliable result. Data should not be used. Analyte may or may not be present in the sample. |

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: SWMU 32—PCB SPILL SWMU

ICP-Metals

One lot of ICP-metal analyses of soil samples using method JS12 were reviewed. All antimony detection limits were rejected because of zero antimony recovery in the natural (matrix) spikes. this indicates the possibility of false negatives. The USAEC did not flag this problem because natural spikes are not part of the USAEC QA program; however, they recommend against using Method JS12 for antimony in soil samples because of known poor recovery problems.

SVOC

One lot of SVOC analyses for soil samples using Method LM25 was reviewed. All samples had none or more analyte result(s) qualified due to poor internal standard response, a parameter not checked under standard USAEC review. Results qualified for poor internal standard response should be considered to be potentially biased low.

PCB/Pesticides

Four compounds (PCB-1016, PCB-1260, PCB-1262, and toxaphene) were not included in the initial calibration, any daily calibration, and were not part of the list of compounds scanned for in any sample. These compounds were reported on the transfer files as LT (less than) values, with no laboratory flags. As these compounds were not scanned for (except as unknown compounds) the reporting limits (CRL) are rejected (R). For one sample (BRP-94-18A) PCB compounds were reported as the tentative identification for many of the unknown (non-target) compound peaks. As specified by USATHAMA PAM 11-41, the PCB compounds were reported on the transfer file as UNKxxx, where xxx is a three digit number. Due to the limitations of the calibration and the GCMS detector, these PCB compounds cannot be identified as unique isomers, and cannot be accurately quantitated. However, the presence of PCB compounds in this sample indicates that multiple PCB isomers could be present in high concentrations. The identification should be qualitative (PCB compounds are present), and the reported concentrations should be considered gross estimates.

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
LOT No.: ANVM**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANVM were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANVM. One field rinse blank (3ER-35) was listed on the field Chain-of-Custody for metal analysis. This sample's results were not provided with Lot ANVM. All other Lot ANVM samples listed on the chain-of-custody were analyzed. Sample IDs were tracked from the field chain-of-custody to the transfer file printout, and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample. No errors in field IDs were noted.

III. FIELD QUALITY CONTROL

The duplicates of TDP-94-16A and TDP-94-16B, Samples TDP-94-09A and TDP-94-09B were not submitted with Lot ANVM so field precision could not be evaluated.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of thallium with a percent recovery (%R) value of 122.0%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The %R of the CCVs were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit and no PB result was greater than the reporting limit. Aluminum, barium, calcium, iron, potassium, magnesium, manganese, and vanadium were detected in one QC blank (BL-39448-1). Since this soil blank sample (from RMA soil, R3D-381) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANVM-1.

Discussion:

Two sets of MS/MSD analyses were performed on Samples TDP-94-05B and TDP-94-13A. The MSD %R value for manganese in the first set of MS/MSD analyses was 136%, which was greater than the upper control limit of 125%. Since the MS %R value and RPD value for manganese in the first set of MS/MSD analyses were within the control limits, no action was recommended. The antimony %R values in both MS/MSD analyses were 0% which indicates antimony analyses by ICP method were questionable. As antimony was not detected in any of the samples, a possibility of false non-detects exist. The quantitation limits for antimony were

rejected and not usable for any purposes. All other %R and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion

One low spike and two high spike analyses were performed with this sample lot. Recovery values were evaluated based on the control chart upper and lower limits. The %R of the low spike and both high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Beryllium	Acceptable	92.5% to 105.1%	100.0%	99.2%	94.25% to 98.8%
Chromium	Acceptable	90.5% to 110.3%	101.0%	Acceptable	96.6% to 100.4%
Vanadium	Acceptable	59.2% to 127.8%	101.3%	Acceptable	93.7% to 100.5%

As these spike recovery values were close to the USAEC control limits and still within the control limits specified in Functional Guidelines (2/94), no qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each element was reviewed. All reporting limits match the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANVM is acceptable. The laboratory noted high spike recovery values trending above the central line for cadmium and lead; high spike recovery values moving in a downward direction for chromium; low spike recovery values above the central line for boron, beryllium, and lead; low spike recovery values trending below the central line for copper and molybdenum; low spike recovery values moving in an upward direction for cobalt, tin, tellurium, and thallium; low spike recovery values moving in a downward direction for molybdenum, nickel, lead, vanadium, and zinc; and low spike range above the control chart upper limit for copper and nickel. No other qualification is recommended based on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANVM

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	TDP-94-05B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-06A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-06B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-07A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-07B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-04A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-04B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-05A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-13A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-13B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-14A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-14B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-15A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-15B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-16A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	TDP-94-16B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-08A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-08B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-08C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPB-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	PPS-94-05	LT 19.6 ug/g	MS/MSD %R = 0%	5

SEMIVOLATILE ORGANIC ANALYSES: SOIL
METHOD: LM25
LOT No.: ANUH

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANUH were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. Sample moisture data was provided on the transfer file, but moisture raw data logbook pages were not provided. Results for MS/MSD analyses have been included although they are not required by USATHAMA 11-41 for Class 1A analyses. Transfer files, DataChem QA Status Reports and USAEC Control Chart Response were provided. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANUH. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions. All samples listed on ANUH chain-of-custody forms were analyzed.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANUH. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. Field Quality Control

Two samples were submitted as a field duplicate set (BRP-94-09C and BRP-94-18C). Relative percent difference (RPD) values were calculated for all positive results detected in both samples. Field precision is considered acceptable on the basis of low RPD values (<30%). Two other samples (BRP-94-18A and BRP-94-18B) were listed as field duplicates on the chain-of-custody. However, the replicates of these samples were not included as part of Lot ANUH. An assessment of field precision could not be made for those samples. No field or trip blanks were submitted with Lot ANUH.

IV. TECHNICAL ASSESSMENT

1.0 Sample Holding Times: ACCEPTABLE/All criteria met.

The extraction holding time criterion listed in Method LM25 for semivolatiles in a soil matrix is 14 days from date sampled to extraction date. The analytical holding time criterion listed in Method LM25 for soil matrices is 40 days from extraction date to date of analysis. All soil samples were extracted within seven days of sampling and analyzed within seven days of extraction.

2.0 GC/MS Instrument Performance Check: ACCEPTABLE/All criteria met.

DFTPP was analyzed at the beginning of each twelve hour analytical sequence as required. All DFTPP data were provided, and all results were within the specified control limits.

3.0 Initial and Daily Calibration: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table

Discussion:

The initial calibration was performed at the proper frequency. Six standards were used, meeting USATHAMA PAM 11-41 criterion for Class 1A. Relative response factors (RRF) and percent relative standard deviation (%RSD) values were verified by recalculation. No calculation or transcription errors were noted. During data assessment, only positive results in the associated samples would be qualified on the basis of outlying curve linearity (indicated by %RSD values above 30%). All positive results were associated with acceptable compound curves. No action required.

Several compounds (heptachloroepoxide, chlordane and endosulfan II) had RRF values below the 0.05 lower control limit. These compounds are not consistently recoverable using GCMS methods, and historically have very low response factors. However, these compounds had acceptable %RSD values, indicating a stable response, and all RRF values were above 0.01. No action was taken.

Four compounds (PCB-1016, PCB-1260, PCB-1262, and toxaphene) were not included in the initial calibration, any daily calibration, and were not part of the list of compounds scanned for in any sample. These compounds were reported on the transfer files as LT (less than) values, with no laboratory flags. As these compounds were not scanned for (except as unknown compounds), the reporting limits (CRL) are rejected (R).

Continuing calibrations (CCAL) were run at the correct frequency (before and after sample analyses). All daily calibrations met the Method LM25 criteria. All of the CCAL had compounds with percent difference (%D) values greater than the $\pm 25\%$ control limits. A list of all %D outliers is in the Data Quality Assessment Worksheet. All positive compound results

associated with an outlying %D value are estimated (J). For non-detects associated with %D outliers, the detection limits (CRL) were judged not significantly affected, with the exception of the hexachlorocyclopentadiene and 4,6-dinitro-2-methylphenol detection limits. These compounds had a %D values greater than 50% in the second CCAL. A %D value greater than 50% indicates a significant loss of instrument sensitivity. As all sample analyses are associated with this CCAL, all detection limits for these compounds are estimated (UJ). One other compound (2,4-dinitrophenol) had a %D value of 53% in the final CCAL. The 2,4-dinitrophenol detection limits in the samples associated with this CCAL are estimated (UJ). All other %D values were acceptable.

4.0 Blank Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table

Discussion:

A method blank was analyzed at the required frequency. One phthalate ester (di-n-butyl phthalate) was detected at a level below the CRL in the method blank. Several unknown compounds were also detected. A list of all compounds detected in the method blank is in the Data Quality Assessment Worksheet. Action levels were established at ten times the concentration in the blank. Di-n-butyl phthalate was detected in two samples at concentrations below the action level. These results were qualified as not detected (U) at the reported levels. Unknown compounds that were detected in the samples at concentrations less than the action levels were rejected (R). The unknown compounds were verified using the scan number, retention times, and a comparison of the mass spectra.

No field or equipment blanks were submitted with this lot.

5.0 Surrogate Recovery: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Surrogate compound percent recoveries (%R) were reviewed by recalculation. See the Data Quality Assessment Worksheets for examples of surrogate calculations. The upper and lower surrogate percent recovery limits from the control charts in the DataChem QA Status Report are based upon a standard matrix (ASTM Type II water) surrogate quality control spike. There are no control charts for field sample (natural matrix) surrogate recovery. For data assessment purposes, the surrogate percent recoveries were compared to the limits specified in the three day moving average percent recovery control charts in the DataChem QA Status Report, and the surrogate recovery limits specified in the EPA Contract Laboratory Program (CLP) 3/90 Statement Of Work (SOW). The CLP SOW does not specify recovery limits for two of the USATHAMA-specified surrogate compounds, di-n-octyl phthalate-d4 and diethylphthalate-d4. For these compounds, a recovery range of 20% to 130% was used to assess the field sample

results. The range is the same as the range recommended in the CLP SOW for new surrogate compounds.

One surrogate standard (di-n-octyl phthalate-d4) had percent recovery values above the 130% upper control limit (UCL) criterion in all samples and QC analyses. No data qualifiers are recommended unless two or more semivolatile surrogates within the same fraction (acid or base/neutral) are outside the control limits. No action was taken. Sample PPB-94-03A also had a high recovery for diethyl phthalate-d4 (134%). As the phthalate surrogates are not EPA CLP 3/90 SOW surrogates and the recovery ranges are only recommended, and as all other surrogate recoveries were acceptable, no action was taken. All other surrogate recoveries were within the limits specified by the EPA CLP 3/90 SOW. For surrogate compounds not specified in the EPA CLP 3/90 SOW, all other recoveries fell within the 20% to 130% recovery range.

In the 14 field and QC sample analyses, 14 analyses each had from one to four percent recovery values outside the acceptance range specified in the DataChem QA Status Report control charts. The samples and the surrogate outliers are listed in the Data Quality Assessment Worksheet. As the surrogate percent recoveries met the CLP limits (except as noted above), and as the surrogate recoveries were not significantly outside the control chart limits, no qualifiers were issued to the samples based on control chart surrogate percent recovery outliers.

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Sample Analyses:
ACCEPTABLE/All criteria met.

MS/MSD analyses were submitted with lot ANUH. MS/MSD analyses were performed using Sample PPB-94-03A. All percent recovery (%R) values are within 80% to 120%, indicating an acceptable degree of accuracy. All relative percent difference (RPD) values are less than 15%, indicating an acceptable degree of precision.

7.0 Field Duplicates: ACCEPTABLE/All criteria met.

Two samples were submitted as a field duplicate set (BRP-94-09C and BRP-94-18C). Relative percent difference (RPD) values were calculated for all positive results detected in both samples. Field precision is considered acceptable on the basis of low RPD values (<30%). Two other samples (BRP-94-18A and BRP-94-18B) were listed as field duplicates. However, the replicates of these samples were not included as part of Lot ANUH. An assessment of field precision could not be made for those samples.

8.0 Internal Standards Performance: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table.

Discussion:

Analysis of areas and retention times for internal standards was conducted (see Data Quality Assessment Worksheets). No quality control criteria for internal standards are specified in USATHAMA PAM 11-41 or the laboratory method. For data assessment purposes, the criteria from U.S. EPA National Functional Guidelines was used to assess the internal standards.

Several samples had from one to five internal standards with areas below the lower control limit (50% of the continuing calibration internal standard area). All analyses had low areas for the last internal standard, perylene-d12. A list of the internal standard outliers, and a list of the associated target compounds are in the Data Quality Assessment Worksheets. All positive results associated with a non-compliant internal standard are estimated (J). For non-detected compounds, the detection limits (CRL) are estimated (UJ).

All other internal standard areas were within the acceptance window of 50% to 200% of the continuing calibration internal standard area. All other retention times were within ± 30 seconds of the continuing calibration internal standard retention time.

9.0 Compound Identification: ACCEPTABLE/All criteria met.

All compound identifications were reviewed and are found to be acceptable.

10.0 Compound Quantitation and Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

Target compound quantitation were recalculated using the method described in the CLP SOW, with results similar to those reported by the laboratory. The compound quantitations were judged to be acceptable. The reported CRL met those listed in Method LM25. No transcription errors were found.

11.0 Unknown Compounds: ACCEPTABLE/With the following qualification.

Qualified Data: See Section 4.0. All other unknown compounds were qualified JN.

Discussion:

Mass spectral library searches to identify unknown (non-target) compounds were performed as required, and all reported identifications were acceptable. As discussed in Section 4.0, unknown compounds in a sample that were also detected in the associated method blank were rejected (R). All other unknown compounds are qualified as estimated with tentative identification (JN).

As discussed in Section 3.0, PCB compounds were not calibrated or scanned for during the analysis. The PCB results on the transfer file were either reported as ND with an 'R' flag by the laboratory, or were rejected during the Data Quality Assessment. For one sample (BRP-94-18A), PCB compounds were reported as the tentative identification for many of the unknown

(non-target) compound peaks. As specified by USATHAMA PAM 11-41, the PCB compounds were reported on the transfer file as UNKxxx, where xxx is a three digit number. Due to the limitations of the calibration and the GCMS detector, these PCB compounds cannot be identified as unique isomers, and cannot be accurately quantitated. However, the presence of PCB compounds in this sample indicates that multiple PCB isomers could be present in high concentrations. The identification should be qualitative (PCB compounds are present), and the reported concentrations should be considered gross estimates.

12.0 System Performance: ACCEPTABLE/All criteria met.

No signs of degraded instrument performance were observed. The analytical systems were judged to have been in tune, within control, and stable during the course of these analyses.

13.0 OVERALL ASSESSMENT/QC SUMMARY

Based on this evaluation, the laboratory followed the specified analytical method.

Accuracy is acceptable, as demonstrated by the %R values of most of the surrogate and matrix spike recoveries. Precision is acceptable on the basis of MS/MSD RPD values.

The DataChem QC Status report notes the following trends were found in Lot ANUH: terphenyl-d14 recoveries are trending below the mean, and 2-chlorophenol-d4, 2-fluorobiphenyl, 2-fluorophenol, diethyl phthalate-d4, nitrobenzene-d5 and phenol-d6 recoveries were going in a downward direction. The individual outliers listed were a high recovery for diethyl phthalate-d4, and a low recovery for phenol-d6. The DataChem QA Status Report recommends that Lot ANUH be accepted. The USAEC Control Chart Response letter accepts Lot ANUH with no comments. The above noted trends and outliers have no significant impact upon the reported data, other than is discussed in this Data Quality Assessment Report.

PCB compounds were detected as unknown compounds in Sample BRP-94-18A. The PCB compounds were reported on the transfer file as UNKxxx, where xxx is a three digit number. As discussed in Section 3.0, the PCB isomers reported as target compounds on the transfer file were either flagged 'R' by the laboratory or were rejected during the Data Quality Assessment. Due to the limitations of the calibration and the GCMS detector, these PCB compounds cannot be identified as unique isomers, and cannot be accurately quantitated. However, the presence of PCB compounds in this sample indicates that multiple PCB isomers could be present in high concentrations. The identification should be qualitative (PCB compounds are present), and the reported concentrations should be considered gross estimates.

Data qualifiers were assigned due to calibration outliers, low internal standard areas, and blank contamination. Unknown (non-target) compounds were qualified JN.

Data that are rejected are unusable for any purpose. All other data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANUH

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
di-n-butylphthalate	DNBP	U	BRP-94-18A	1.5	< Action Level	4
di-n-butylphthalate	DNBP	U	BRP-94-08A	1.9	< Action Level	4
UNK530	UNK530	R	PPB-94-03A	0.4	< Action Level	4
UNK643	UNK643	R	PPB-94-03A	1	< Action Level	4
UNK642	UNK642	R	PPB-94-03B	0.5	< Action Level	4
UNK643	UNK643	R	PPB-94-03C	0.7	< Action Level	4
UNK642	UNK642	R	PPS-94-05	0.4	< Action Level	4
UNK642	UNK642	R	BRP-94-09C	0.5	< Action Level	4
UNK642	UNK642	R	BRP-94-18A	0.3	< Action Level	4
UNK642	UNK642	R	BRP-94-18B	0.4	< Action Level	4
UNK642	UNK642	R	BRP-94-18C	0.7	< Action Level	4
UNK642	UNK642	R	BRP-94-08A	0.6	< Action Level	4
UNK643	UNK643	R	BRP-94-08B	0.3	< Action Level	4
hexachlorocyclopentadiene	CL6CP	UJ	ALL SAMPLES	CRL = 0.52	CCal %D > 50%	3
4,6-dinitro-2-methylphenol	46DN2C	UJ	ALL SAMPLES	CRL = 0.8	CCal %D > 50%	3
2,4-dinitrophenol	24DNP	UJ	BRP-94-08A	CRL = 4.7	CCal %D > 50%	
2,4-dinitrophenol	24DNP	UJ	BRP-94-08B	CRL = 4.7	CCal %D > 50%	
2,4-dinitrophenol	24DNP	UJ	BRP-94-08C	CRL = 4.7	CCal %D > 50%	
benzyl alcohol	BZALC	J	PPB-94-03A	0.056	CCal %D > 25%	3
benzyl alcohol	BZALC	J	PPB-94-03B	0.054	CCal %D > 25%	3
benzyl alcohol	BZALC	J	PPS-94-05	0.038	CCal %D > 25%	3
benzyl alcohol	BZALC	J	BRP-94-09C	0.049	CCal %D > 25%	3
benzyl alcohol	BZALC	J	BRP-94-18C	0.063	CCal %D > 25%	3
benzyl alcohol	BZALC	J	BRP-94-08A	0.056	CCal %D > 25%	3
benzyl alcohol	BZALC	J	BRP-94-08B	0.051	CCal %D > 25%	3
Benzo(k)fluoranthene	BKFANT	J	BRP-94-18A	0.17	CCal %D > 25%	3
PCB 1016	PCB016	R	All Samples	CRL = 0.32	Analytes not scanned	3
PCB 1260	PCB260	R	All Samples	CRL = 0.79	Analytes not scanned	3
PCB 1262	PCB262	R	All Samples	CRL = 6.3	Analytes not scanned	3
toxaphene	TXPHEN	R	All Samples	CRL = 12	Analytes not scanned	3
1,2,3-trichlorobenzene	123TCB	UJ	PPB-94-03A	0.032	Low area in associated I.S. (naphthalene-d8)	8
1,2,4-trichlorobenzene	124TCB	UJ	PPB-94-03A	0.22		8
2,4-dichlorophenol	24DCLP	UJ	PPB-94-03A	0.065		8
2,4-dimethylphenol	24DMPN	UJ	PPB-94-03A	3		8
2-methyl naphthalene	2MNAP	UJ	PPB-94-03A	0.032		8
2-nitrophenol	2NP	UJ	PPB-94-03A	1.1		8
3-nitrotoluene	3NT	UJ	PPB-94-03A	0.34		8
4-chloroaniline	4CANIL	UJ	PPB-94-03A	0.63		8
benzoic acid	BENZOAC	UJ	PPB-94-03A	3.1		8
bis(2-chloroethoxy)methane	B2CEXM	UJ	PPB-94-03A	0.19		8
dibromochloropropane	DBCP	UJ	PPB-94-03A	0.071		8
hexachlorobutadiene	HCBD	UJ	PPB-94-03A	0.97		8
isophorone	ISOPHR	UJ	PPB-94-03A	0.39		8
naphthalene	NAP	UJ	PPB-94-03A	0.74		8
nitrobenzene	NB	UJ	PPB-94-03A	1.8		8
p-chloro-m-cresol	4CL3C	UJ	PPB-94-03A	0.93		8
p-chlorophenylmethyl sulfide	CPMS	UJ	PPB-94-03A	0.097		8
vapona	DDVP	UJ	PPB-94-03A	0.068		8

Qualified Data Summary Table Lot No: ANUH

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
1,3-dinitrobenzene	13DNB	UJ	PPB-94-03A	0.63	Low area in associated I.S. (acenaphthene-d10)	8
2,3,6-trichlorophenol	236TCP	UJ	PPS-94-05	0.62		8
2,4,5-trichlorophenol	245TCP	UJ		0.49		8
2,4,6-trichlorophenol	246TCP	UJ		0.061		8
2,4-dinitrophenol	24DNP	UJ		4.7		8
2,4-dinitrotoluene	24DNT	UJ		1.4		8
2,6-dinitrotoluene	26DNT	UJ		0.32		8
2-chloronaphthalene	2CNAP	UJ		0.24		8
2-nitroaniline	2NANIL	UJ		3.1		8
3-nitroaniline	3NANIL	UJ		3		8
4-chlorophenylphenyl ether	4CLPPE	UJ		0.17		8
4-nitroaniline	4NANIL	UJ		3.1		8
4-nitrophenol	4NP	UJ		3.3		8
acenaphthene	ANAPNE	UJ		0.041		8
acenaphthylene	ANAPYL	UJ		0.033		8
dibenzofuran	DBZFUR	UJ		0.38		8
diethylphthalate	DEP	UJ		0.24		8
dimethylphthalate	DMP	UJ		0.063		8
fluorene	FLRENE	UJ		0.065		8
hexachlorocyclopentadiene	CL6CP	UJ		0.52		8
p-chlorophenylmethyl sulfone	CPMSO2	UJ		0.066		8
p-chlorophenylmethylsulfoxide	CPMSO	UJ		0.32		8
fluoranthene	FANT	UJ	PPB-94-03A	0.032	Low area in associated I.S. (phenanthrene-d10)	8
fluoranthene	FANT	J	PPS-94-05	0.046		8
fluoranthene	FANT	UJ	BRP-94-08C	0.032		8
1,2-diphenylhydrazine	12DPH	UJ	PPB-94-03A	0.52	Low area in associated I.S. (phenanthrene-d10)	8
2,6-dinitroaniline	26DNA	UJ	PPS-94-05	0.57		8
3,5-dinitroaniline	35DNA	UJ	BRP-94-08C	1.6		8
4,6-dinitro-2-cresol	46DN2C	UJ		0.8		8
4-bromophenylphenyl ether	4BRPPE	UJ		0.041		8
aldrin	ALDRN	UJ		1.3		8
alpha-BHC	ABHC	UJ		1.3		8
anthracene	ANTRC	UJ		0.71		8
atrazine	ATZ	UJ		0.065		8
beta-BHC	BBHC	UJ		1.3		8
delta-BHC	DBHC	UJ		0.21		8
di-n-butylphthalate	DNBP	UJ		1.3		8
heptachlor	HPCL	UJ		0.24		8
heptachlor epoxide	HPCLE	UJ		0.48		8
hexachlorobenzene	CL6BZ	UJ		0.08		8
isodrin	ISODR	UJ		0.48		8
lindane	LIN	UJ		0.1		8
malathion	MLTHN	UJ		0.18		8
N-nitrosodiphenylamine	NNDPA	UJ		0.29		8
parathion	PRTHN	UJ		1.7		8
pentachlorophenol	PCP	UJ		0.76		8
phenanthrene	PHANTR	UJ		0.032		8
supona	SUPONA	UJ		0.92		8

Qualified Data Summary Table Lot No: ANUH

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
3,3'-dichlorobenzidine	33DCBD	UJ	PPB-94-03A	1.6	Low area in associated I.S. (chrysene-d12)	8
4,4'-DDD	PPDDD	UJ	PPS-94-05	0.064		8
4,4'-DDE	PPDDE	UJ	BRP-94-08B	0.068		8
4,4'-DDT	PPDDT	UJ	BRP-94-08C	0.1		8
benzo[a]anthracene	BAANTR	UJ		0.041		8
bis(2-ethylhexyl)phthalate	B2EHP	UJ		0.48		8
butylbenzylphthalate	BBZP	UJ		1.8		8
chlordane	CLDAN	UJ		0.68		8
chrysene	CHRY	UJ		0.032		8
dieldrin	DLDRN	UJ		0.079		8
endosulfan I	AENSLF	UJ		0.4		8
endosulfan II	BENSLF	UJ		2.4		8
endosulfan sulfate	ESFSO4	UJ		1.2		8
endrin	ENDRN	UJ		1.3		8
endrin aldehyde	ENDRNA	UJ		1.8		8
endrin ketone	ENDRNK	UJ		0.28		8
famphur	FAMPHR	UJ		1.3		8
kepone	KEP	UJ		1.3		8
methoxychlor	MEXCLR	UJ		0.26		8
pyrene	PYR	UJ		0.083		8
benzo[a]pyrene	BAPYR	UJ	All Samples except BRP-94-18A	1.2	Low area in associated I.S. (perylene-d12)	8
benzo[b]fluoranthene	BBFANT	UJ		0.31		8
benzo[ghi]perylene	BGHIPY	UJ		0.18		8
benzo[k]fluoranthene	BKFANT	UJ		0.13		8
di-n-octylphthalate	DNOP	UJ		0.23		8
dibenzo[a,h]anthracene	DBAHA	UJ		0.31		8
indeno[1,2,3,cd]pyrene	ICDPYR	UJ		2.4		8
mirex	MIREX	UJ		0.14		8
benzo[a]pyrene	BAPYR	UJ	BRP-94-18A	1.2	Low area in associated I.S. (perylene-d12)	8
benzo[b]fluoranthene	BBFANT	J		0.38		8
benzo[ghi]perylene	BGHIPY	J		0.2		8
benzo[k]fluoranthene	BKFANT	J		0.17		8
di-n-octylphthalate	DNOP	UJ		0.23		8
dibenzo[a,h]anthracene	DBAHA	UJ		0.31		8
indeno[1,2,3,cd]pyrene	ICDPYR	UJ		2.4		8
mirex	MIREX	UJ		0.14		8



EcoChem, Inc.

Environmental Science and Chemistry

DATA QUALITY ASSESSMENT

**TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003**

**SWMU 35
WASTEWATER SPREADING AREA**

Prepared for:

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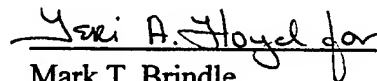
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:



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DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil and water samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 35	Pesticides	ANHJ	LH17 (SOIL)	Marcia Bender	Eric Strout
	Pesticides	ANWT	UH20 (WATER)	Marcia Bender	Eric Strout
	Explosives	ANRS	UW25 (WATER)	Mark T. Brindle	Eric Strout

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as Appendix A. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

- | | |
|---|--|
| U | The material was analyzed for, but was not detected.
The associated numerical value is the certified reporting limit. |
| R | Unreliable result. Data should not be used. Analyte may or may not be present in the sample. |

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY SWMU 35 WASTEWATER SPREADING AREA

Pesticides

One lot of pesticide analyses of water samples using Method UH20 was reviewed. All results were acceptable for use without qualification, except for endosulfan I. As noted by the USAEC, the low spike recovery for endosulfan I was low. The associated detection limits were estimated (UJ) due to possible low bias.

One lot of pesticide analyses of soil samples using Method LH17 was reviewed. The DataChem QA Status Report notes that almost all recoveries in the QC spike are above the control limits. The laboratory states that this is due to a cracked vial, which allowed some of the solvent to evaporate, concentrating the sample. The laboratory also noted that the recoveries obtained during the sample screening (performed prior to the solvent loss) were acceptable, as were the recoveries of standards and MS/MSD compounds. The laboratory flagged all associated data "H". The USAEC accepted the lot, and flagged all associated data with "M" flags. As the high recoveries are a one time occurrence due to an isolated incident, the high recoveries were judged to have no significant impact on the reported results, and no data qualifiers were issued during the Data Quality Assessment.

Qualifications were issued to seven samples due to the suspected presence of technical chlordane. As chlordane was not reported, the possibility of false negatives exists, and the chlordane CRL were qualified as not usable (R) in the affected samples. As the multi-component peaks of technical chlordane would mask other analytes, resulting in elevated detection limits and possible false positive results, all other analytes in the affected samples were estimated (J/UJ).

Explosives

One lot of explosives analyses of water samples using Method UW25 was reviewed. The laboratory flagged all RDX results as "7" due to poor recovery of the high concentration spike. All RDX data (all non-detects) were qualified as estimated at the detection limit. Qualifiers were assigned to 2,4-dinitrotoluene and nitrobenzene CRL in one sample (WW-1) due to poor MS/MSD precision. The MS/MSD analyses are not required by the USAEC program, but are required for the assessment of sites within the State of Utah.

DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: WATER
METHOD: UW25
LOT: ANRS

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANRS were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot ANRS. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot ANRS. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

Sample 3ER-38 from Lot ANRS was identified as field quality control sample on the chain-of-custody forms. One compound (1,3,5-trinitrobenzene) was detected in the field rinsate blank at a concentration of 0.45 µg/L, slightly above the certified reporting limit of 0.21 µg/L. Since 1,3,5-trinitrobenzene was detected in no other field sample in Lot ANRS, no action was taken.

Samples WW-1 and WW-1 DUP were identified on the chain-of-custody forms as field duplicate samples. Target compounds were not detected in either sample. Field duplicate precision was not evaluated.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All water samples in Lot ANRS were extracted within three days of collection and were analyzed within 16 days of extraction. The seven-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One water method blank was associated with the samples in Lot ANRS. Target compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANRS-1.

Discussion:

The laboratory used Sample WW-1 for MS/MSD analyses with the samples from Lot ANRS. The RDX percent recovery value of 30% in the MSD sample was less than the lower control limit of 70%. The relative percent difference values for 2,4-dinitrotoluene, nitrobenzene, and RDX were greater than the upper control limit for precision of 20%. The detection limits (CRL) for 2,4-dinitrotoluene, nitrobenzene, and RDX in the associated unspiked sample, WW-1, were qualified as estimated, (UJ).

All other percent recovery values were within control limits of 70% to 130%. All other relative percent difference values were less than the maximum allowable value of 20%.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANRS-1.

Discussion:

The DataChem QA Status Report noted that the recovery values for RDX were less than the lower control limit in the high spike analysis. The QA Status Report recommends that the data for Lot ANRS be accepted with a flagging code of "7" for all RDX data. The reviewer concurs with the recommendation and has qualified all RDX detection limits as estimated, (UJ).

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot ANRS were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

An examination of the DataChem QA Status Report that includes Lot ANRS revealed the following items: RDX results in the high spike were below the lower control limit.

All RDX detection limits were qualified as estimated (UJ) due to high spike accuracy deficiencies. Qualifiers were issued to the 2,4-dinitrotoluene and nitrobenzene CRL in Sample WW-1 because of poor MS/MSD precision.

All data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANRS-1

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
RDX	RDX	UJ	3ER-38	LT 4.16E-1	HS%R<LCL	6.0
RDX	RDX	UJ	WW-1	LT 4.16E-1	HS%R<LCL	6.0
RDX	RDX	UJ	WW-1 DUP	LT 4.16E-1	HS%R<LCL	6.0
RDX	RDX	UJ	WW-1	LT 4.16E-1	MS/MSD %R & RPD out	5.0
2,4-Dinitrotoluene	24DNT	UJ	WW-1	LT 3.97E-1	MS/MSD RPD > UCL	5.0
Nitrobenzene	NB	UJ	WW-1	LT 6.82E-1	MS/MSD RPD > UCL	5.0

DATA QUALITY ASSESSMENT
PESTICIDE ANALYSES: SOIL
METHOD: LH17
LOT No.: ANHJ

I. DELIVERABLES AND DOCUMENTATION

Method LH17 analyzes for pesticides/PCB compounds. Only organochlorine pesticide analyses were requested, so a modified method LH17 was performed. No PCB compounds were reported. All necessary documentation for lot ANHJ were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. Transfer files, the DataChem QA Status Report, and USAEC Control Chart Response were also provided.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in lot ANHJ. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions. All samples listed on field chain-of-custody forms were analyzed, with the exception of one equipment rinsate sample, 3ER-33. This sample was not included with lot ANHJ.

Laboratory chain-of-custody forms were present and complete for each sample in lot ANHJ. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field ID and laboratory ID for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. Discrepancies were not found.

III. FIELD QUALITY CONTROL

Sample WSS-94-16 was identified on the field chain-of-custody form as a field duplicate of Sample WSS-94-09. Gamma-BHC, 4,4'-DDE, and 4,4'-DDT were detected in both samples. Relative percent difference (RPD) values of less than 25% were calculated for these analytes, indicating acceptable precision. Heptachlor epoxide was detected just above the detection limit in Sample WSS-94-16 only. As the RPD between this detected value and the detection limit reported for the original sample is also less than 25%, no action was taken. No qualification was

necessary. Sample 3ER-33 was identified on the field chain-of-custody form as a field equipment rinsate sample, but was not analyzed as part of lot ANHJ. No other field QC samples were identified.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples were extracted within two days of collection and were analyzed within 20 days of extraction. The USATHAMA PAM 11-41-required extraction holding time limit of seven days and analysis holding time of 40 days were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for pesticide compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%. Percent difference (%D) values for pesticide compounds were reported by the laboratory. All %D values were within control limits.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One method blank was associated with the samples in this lot. Target and non-target pesticide compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike / Matrix Spike Duplicate Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The laboratory performed MS/MSD analyses at a frequency of one pair per 20 samples. MS/MSD analysis was performed on Sample WSS-94-05. Percent recovery (%R) and relative percent difference (RPD) values for pesticide compounds were evaluated. All analytes with associated acceptance criteria were within USEPA control limits for %R and RPD, with the exception of the %R value for 4,4'-DDT in both the matrix spike and the matrix spike duplicate samples. The 4,4'-DDT %R values were above the upper control limit. The elevated recoveries were caused by matrix interference. No action was taken. Two compounds (endosulfan I and methoxychlor) were also included in the spike solution. There are no USEPA control limits for these compounds. The %R and RPD values were judged acceptable.

6.0 High Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Two high concentration spike analyses were performed with sample lot ANHJ. One analysis was spiked with technical chlordane, the other with a mixture of individual target compound pesticides. The percent recovery of the technical chlordane was below the lower control limit. The percent recoveries of individual pesticide analytes were all above the upper control limit. The laboratory attributes the high recoveries to accidental concentration, due to a crack in the sample vial that allowed solvent evaporation. Results from the sample screening performed prior to concentration show the QC values within limits, and comparable field sample values to those achieved during sample analysis. Also, the standard and MS/MSD analyses had acceptable results. The elevated %R values in the high concentration spike analysis were judged to be a one time occurrence, and had no impact on the reported sample results. No data qualifiers were issued.

7.0 Compound Identification: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualifier Table.

Discussion:

The chromatograms and raw data for lot ANHJ were reviewed for organochlorine pesticide compounds. In seven samples, chlordane was reported as not detected, and two individual chlordane isomers (alpha and gamma chlordane) were reported as positive results. A review of the chromatograms indicated the possible presence of technical chlordane, a multi-component compound with many eluting peaks which reflect the many chlordane isomers. Notes made by the analyst on the raw data (and repeated in the data package case narrative) state that the presence of technical chlordane was suspected by the analyst for these samples.

As the presence of technical chlordane is suspected, the reported non-detect for chlordane represents a possible false negative result. For this reason, the chlordane detection limit (CRL) is qualified as unusable (R) in the seven samples, as summarized in the Qualified Data Summary Table.

8.0 Compound Quantitation and Certified Reporting Limit (CRL): ACCEPTABLE/ With the following exceptions.

Qualified Data: See Qualifier Table.

Discussion:

As discussed in Section 7.0, the presence of technical chlordane was suspected in seven samples. As technical chlordane is a multi-component analyte with many peaks, the presence of technical chlordane can mask other analytes which have similar elution times. This interference results in

elevated detection limits, and an increased possibility of false positive identifications. Due to this, all target analytes in the affected samples are estimated (J/UJ).

Compound quantitation was reviewed by recalculation; no errors were noted. The CRL on the transfer file met those listed in the method. No transcription errors were found.

Several compounds that are not method LH17 target compounds were included during the analyses. These compounds were correctly flagged "T" (for non-detects) or "Z" (for positive results) by the laboratory. No action was required.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. Accuracy was acceptable, based upon the percent recovery values for most of the spiked analytes. Precision was acceptable, based upon the low RPD values for the MS/MSD and field duplicate sets.

The DataChem QA Status Report notes that almost all recoveries in the QC spike are above the control limits. The laboratory states that this is due to a cracked vial, which allowed some of the solvent to evaporate, concentrating the sample. The laboratory also noted that the recoveries obtained during the sample screening (performed prior to the solvent loss) were acceptable, as were the recoveries of standards and MS/MSD compounds. The laboratory flagged all associated data "H". The USAEC accepted the lot, and flagged all associated data with "M" flags. As the high recoveries are a one time occurrence due to an isolated incident, the high recoveries were judged to have no significant impact on the reported results, and no data qualifiers were issued during the Data Quality Assessment.

Qualifications were issued to seven samples due to the suspected presence of technical chlordane. As chlordane was not reported, the possibility of false negatives exists, and the chlordane CRL were qualified as not usable (R) in the affected samples. As the multi-component peaks of technical chlordane would mask other analytes, resulting in elevated detection limits and possible false positive results, all other analytes in the affected samples were estimated (J/UJ).

Data that are rejected (R) are not usable for any purpose. All other data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANHJ

Analyte	Code	Qualifier	Sample ID	Conc(ug/g)	Reason	Report Section
Chlordane (Tech)	CLDAN	R	WSS-94-01	LT 6.84E-2	False negative	7
Chlordane (Tech)	CLDAN	R	WSS-94-03	LT 6.84E-2	False negative	7
Chlordane (Tech)	CLDAN	R	WSS-94-06	LT 6.84E-2	False negative	7
Chlordane (Tech)	CLDAN	R	WSS-94-07	LT 6.84E-2	False negative	7
Chlordane (Tech)	CLDAN	R	WSS-94-08	LT 6.84E-2	False negative	7
Chlordane (Tech)	CLDAN	R	WSS-94-09	LT 6.84E-2	False negative	7
Chlordane (Tech)	CLDAN	R	WSS-94-16	LT 6.84E-2	False negative	7
	ABHC	UJ	WSS-94-01	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	UJ	WSS-94-01	LT 1.00E-3	Uncertain detection limit	8
	ALDRN	UJ	WSS-94-01	LT 1.4E-3	Uncertain detection limit	8
	BBHC	UJ	WSS-94-01	LT 7.70E-3	Uncertain detection limit	8
	BENSLF	UJ	WSS-94-01	LT 7.00E-4	Uncertain detection limit	8
	DBHC	UJ	WSS-94-01	LT 8.50R-3	Uncertain detection limit	8
	DLDRN	J	WSS-94-01	1.94E-03	Possible False Positive	8
	ENDRN	J	WSS-94-01	1.43E-02	Possible False Positive4505X8	8
	HPCL	UJ	WSS-94-01	LT 2.20E-3	Uncertain detection limit	8
	HPCLE	UJ	WSS-94-01	LT 1.30E-3	Uncertain detection limit	8
	ISODR	UJ	WSS-94-01	LT 3.00E-3	Uncertain detection limit	8
	LIN	UJ	WSS-94-01	LT 1.00E-3	Uncertain detection limit	8
	MEXCLR	UJ	WSS-94-01	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	J	WSS-94-01	1.10E-02	Possible False Positive	8
	PPDDE	J	WSS-94-01	1.23E-02	Possible False Positive	8
	PPDDT	J	WSS-94-01	3.87E-02	Possible False Positive	8
	TXPHEN	UJ	WSS-94-01	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	UJ	WSS-94-01	ND 5.00E-4	Uncertain detection limit	8
	ENDRNK	UJ	WSS-94-01	ND 5.00E-4	Uncertain detection limit	8
	ESFSO4	UJ	WSS-94-01	ND 5.00E-4	Uncertain detection limit	8
	ABHC	UJ	WSS-94-03	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	J	WSS-94-03	8.20E-03	Possible False Positive	8
	ALDRN	J	WSS-94-03	1.42E-03	Possible False Positive	8
	BBHC	UJ	WSS-94-03	LT 7.70E-3	Uncertain detection limit	8
	BENSLF	J	WSS-94-03	1.67E-03	Possible False Detection	8
	DBHC	J	WSS-94-03	3.48E-02	Possible False Detection	8
	DLDRN	J	WSS-94-03	2.36E-03	Possible False Detection	8
	ENDRN	J	WSS-94-03	1.54E-02	Possible False Positive	8
	HPCL	UJ	WSS-94-03	LT 2.20E-3	Uncertain detection limit	8
	HPCLE	J	WSS-94-03	1.28E-02	Possible False Positive	8
	ISODR	UJ	WSS-94-03	LT 3.00E-3	Uncertain detection limit	8
	LIN	J	WSS-94-03	1.31E-03	Possible False Positive	8
	MEXCLR	UJ	WSS-94-03	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	J	WSS-94-03	1.25E-02	Possible False Positive	8
	PPDDE	J	WSS-94-03	3.86E-02	Possible False Detection	8
	PPDDT	J	WSS-94-03	9.00E-03	Possible False Positive	8
	TXPHEN	UJ	WSS-94-03	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	J	WSS-94-03	6.25E-04	Possible False Positive	8
	ENDRNK	J	WSS-94-03	5.73E-04	Possible False Positive	8
	ESFSO4	J	WSS-94-03	1.50E-03	Possible False Positive	8

Qualified Data Summary Table Lot No: ANHJ

Analyte	Code	Qualifier	Sample ID	Conc(ug/g)	Reason	Report Section
	ABHC	UJ	WSS-94-06	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	J	WSS-94-06	1.81E-03	Possible False Detection	8
	ALDRN	UJ	WSS-94-06	LT 1.40E-3	Uncertain detection limit	8
	BBHC	UJ	WSS-94-06	LT 7.70E-3	Uncertain detection limit	8
	BENSLF	UJ	WSS-94-06	LT 7.00E-4	Uncertain detection limit	8
	DBHC	UJ	WSS-94-06	LT 8.50E-3	Uncertain detection limit	8
	DLDRN	UJ	WSS-94-06	LT 1.60E-3	Uncertain detection limit	8
	ENDRN	J	WSS-94-06	1.80E-02	Possible False Positive	8
	HPCL	UJ	WSS-94-06	LT 2.20E-3	Uncertain detection limit	8
	HPCLE	J	WSS-94-06	8.49E-03	Possible False Positive	8
	ISODR	UJ	WSS-94-06	LT 3.00E-3	Uncertain detection limit	8
	LIN	UJ	WSS-94-06	LT 1.00E-3	Uncertain detection limit	8
	MEXCLR	UJ	WSS-94-06	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	J	WSS-94-06	1.49E-02	Possible False Positive	8
	PPDDE	J	WSS-94-06	1.39E-01	Possible False Positive	8
	PPDDT	J	WSS-94-06	6.79E-02	Possible False Positive	8
	TXPHEN	UJ	WSS-94-06	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	UJ	WSS-94-06	ND 5.00E-4	Uncertain detection limit	8
	ENDRNK	UJ	WSS-94-06	ND 5.00E-4	Uncertain detection limit	8
	ESFSO4	UJ	WSS-94-06	ND 5.00E-4	Uncertain detection limit	8
	ABHC	UJ	WSS-94-07	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	J	WSS-94-07	2.59E-02	Possible False Positive	8
	ALDRN	UJ	WSS-94-07	LT 1.40E-3	Uncertain detection limit	8
	BBHC	J	WSS-94-07	1.52E-02	Possible False Positive	8
	BENSLF	UJ	WSS-94-07	LT 7.00E-4	Uncertain detection limit	8
	DBHC	J	WSS-94-07	2.14E-02	Possible False Detection	8
	DLDRN	J	WSS-94-07	2.79E-02	Possible False Detection	8
	ENDRN	J	WSS-94-07	3.88E-02	Possible False Positive	8
	HPCL	J	WSS-94-07	1.39E-02	Possible False Detection	8
	HPCLE	J	WSS-94-07	2.29E-02	Possible False Positive	8
	ISODR	UJ	WSS-94-07	LT 3.00E-3	Uncertain detection limit	8
	LIN	J	WSS-94-07	3.70E-02	Possible False Positive	8
	MEXCLR	UJ	WSS-94-07	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	J	WSS-94-07	1.21E-02	Possible False Positive	8
	PPDDE	J	WSS-94-07	7.27E-02	Possible False Positive	8
	PPDDT	J	WSS-94-07	2.34E-02	Possible False Positive	8
	TXPHEN	UJ	WSS-94-07	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	J	WSS-94-07	1.56E-03	Uncertain detection limit	8
	ENDRNK	J	WSS-94-07	8.95E-03	Uncertain detection limit	8
	ESFSO4	J	WSS-94-07	3.59E-03	Uncertain detection limit	8
	ABHC	UJ	WSS-94-08	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	J	WSS-94-08	4.05E-03	Possible False Detection	8
	ALDRN	UJ	WSS-94-08	LT 1.40E-3	Uncertain detection limit	8
	BBHC	UJ	WSS-94-08	LT 7.70E-3	Uncertain detection limit	8
	BENSLF	UJ	WSS-94-08	LT 7.00E-4	Uncertain detection limit	8
	DBHC	UJ	WSS-94-08	LT 8.50E-3	Uncertain detection limit	8
	DLDRN	J	WSS-94-08	5.85E-03	Possible False Detection	8

Qualified Data Summary Table Lot No: ANHJ

Analyte	Code	Qualifier	Sample ID	Conc(ug/g)	Reason	Report Section
	ENDRN	J	WSS-94-08	4.00E-02	Possible False Detection	8
	HPCL	UJ	WSS-94-08	LT 2.20E-3	Uncertain detection limit	8
	HPCLE	J	WSS-94-08	5.82E-03	Possible False Positive	8
	ISODR	UJ	WSS-94-08	LT 3.00E-3	Uncertain detection limit	8
	LIN	UJ	WSS-94-08	LT 1.00E-3	Uncertain detection limit	8
	MEXCLR	UJ	WSS-94-08	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	UJ	WSS-94-08	LT 2.70E-3	Uncertain detection limit	8
	PPDDE	J	WSS-94-08	2.11E-02	Possible False Positive	8
	PPDDT	J	WSS-94-08	5.93E-03	Possible False Positive	8
	TXPHEN	UJ	WSS-94-08	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	UJ	WSS-94-08	ND 5.00E-4	Uncertain detection limit	8
	ENDRNK	UJ	WSS-94-08	ND 5.00E-4	Uncertain detection limit	8
	ESFSO4	UJ	WSS-94-08	ND 5.00E-4	Uncertain detection limit	8
	ABHC	UJ	WSS-94-09	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	UJ	WSS-94-09	LT 1.00E-3	Uncertain detection limit	8
	ALDRN	UJ	WSS-94-09	LT 1.40E-3	Uncertain detection limit	8
	BBHC	UJ	WSS-94-09	LT 7.70E-3	Uncertain detection limit	8
	BENSLF	UJ	WSS-94-09	LT 7.00E-4	Uncertain detection limit	8
	DBHC	UJ	WSS-94-09	LT 8.50E-3	Uncertain detection limit	8
	DLDRN	UJ	WSS-94-09	LT 1.60E-3	Uncertain detection limit	8
	ENDRN	UJ	WSS-94-09	LT 6.50E-3	Uncertain detection limit	8
	HPCL	UJ	WSS-94-09	LT 2.20E-3	Uncertain detection limit	8
	HPCLE	UJ	WSS-94-09	LT 1.30E-3	Uncertain detection limit	8
	ISODR	UJ	WSS-94-09	LT 3.00E-3	Uncertain detection limit	8
	LIN	UJ	WSS-94-09	LT 1.00E-3	Uncertain detection limit	8
	MEXCLR	UJ	WSS-94-09	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	UJ	WSS-94-09	LT 2.70E-3	Uncertain detection limit	8
	PPDDE	J	WSS-94-09	5.90E-03	Possible False Positive	8
	PPDDT	J	WSS-94-09	5.03E-03	Possible False Positive	8
	TXPHEN	UJ	WSS-94-09	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	UJ	WSS-94-09	ND 5.00E-4	Uncertain detection limit	8
	ENDRNK	UJ	WSS-94-09	ND 5.00E-4	Uncertain detection limit	8
	ESFSO4	UJ	WSS-94-09	ND 5.00E-4	Uncertain detection limit	8
	ABHC	UJ	WSS-94-16	LT 2.80E-3	Uncertain detection limit	8
	AENSLF	UJ	WSS-94-16	LT 1.00E-3	Uncertain detection limit	8
	ALDRN	UJ	WSS-94-16	LT 1.40E-3	Uncertain detection limit	8
	BBHC	UJ	WSS-94-16	LT 7.70E-3	Uncertain detection limit	8
	BENSLF	UJ	WSS-94-16	LT 7.00E-4	Uncertain detection limit	8
	DBHC	UJ	WSS-94-16	LT 8.50E-3	Uncertain detection limit	8
	DLDRN	UJ	WSS-94-16	LT 1.60E-3	Uncertain detection limit	8
	ENDRN	UJ	WSS-94-16	LT 6.50E-3	Uncertain detection limit	8
	HPCL	UJ	WSS-94-16	LT 2.20E-3	Uncertain detection limit	8
	HPCLE	J	WSS-94-16	1.59E-03	Possible False Positive	8
	ISODR	UJ	WSS-94-16	LT 3.00E-3	Possible False Positive	8
	LIN	UJ	WSS-94-16	LT 1.00E-3	Possible False Positive	8
	MEXCLR	UJ	WSS-94-16	LT 3.59E-2	Uncertain detection limit	8
	PPDDD	UJ	WSS-94-16	LT 2.70E-3	Uncertain detection limit	8

Qualified Data Summary Table Lot No: ANHJ

Analyte	Code	Qualifier	Sample ID	Conc(ug/g)	Reason	Report Section
	PPDDE	J	WSS-94-16	7.37E-03	Uncertain detection limit	8
	PPDDT	J	WSS-94-16	6.28E-03	Uncertain detection limit	8
	TXPHEN	UJ	WSS-94-16	LT 2.26E-1	Uncertain detection limit	8
	ENDRNA	UJ	WSS-94-16	ND 5.00E-4	Uncertain detection limit	8
	ENDRNK	UJ	WSS-94-16	ND 5.00E-4	Uncertain detection limit	8
	ESFSO4	UJ	WSS-94-16	ND 5.00E-4	Uncertain detection limit	8

DATA QUALITY ASSESSMENT
PESTICIDE ANALYSES: WATER
METHOD: UH20
LOT No.: ANWT

I. DELIVERABLES AND DOCUMENTATION

Method UH20 is for pesticide/PCB analyses in water. Only the organochlorine pesticide analyses were requested, so a modified method UH20 was performed. All necessary documentation for lot ANWT were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Transfer files, the DataChem QA Status Report, and USAEC Control Chart Response were also provided. No final sample results were available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in lot ANWT. All submitted forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions. All water samples listed on the field chain-of-custody forms were analyzed, with the exception of one equipment rinsate sample, 3ER-40. Sample 3ER-40 was requested for PCB analysis only, and was not analyzed as part of Lot ANWT.

Laboratory chain-of-custody forms were present and complete for each sample in lot ANWT. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field ID and laboratory ID for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. Discrepancies were not found.

III. FIELD QUALITY CONTROL

Sample 3ER-42 was identified on the field chain-of-custody form as a field equipment rinsate sample. A low level hit of endosulfan sulfate was detected on the primary column for Sample 3ER-42. This compound was not confirmed, and was not detected in any sample. No action was taken. Samples WW-1 and WW-1(D) were listed on the field chain-of-custody form as field duplicate samples. Pesticide compounds were not detected in the field QC samples. No other field QC samples were identified.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples were extracted within 7 days of collection and were analyzed within 10 days of extraction. The USATHAMA PAM 11-41-required extraction holding time limit of 7 days and analysis holding time of 40 days were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for pesticide compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%. Percent difference (%D) values for pesticide compounds were reported by the laboratory. All %D values were within control limits.

4.0 Blank Analysis: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

One method blank was associated with the samples in this lot. One non-target compound (endosulfan sulfate) was detected in the method blank at a low level. This compound was not confirmed on the secondary column, and was not detected in any field sample. No action was taken. Target pesticide compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike / Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory performed MS/MSD analyses at a frequency of one pair per 20 samples. MS/MSD analysis was performed on Sample WW-1. Percent difference (%D) values and relative percent difference (RPD) for pesticide compounds were evaluated. All values were within USEPA control limits.

6.0 High Spike Analysis: ACCEPTABLE/With the following discussion.

Qualified Data: See Qualified Data Summary Table ANWT-1.

Discussion:

One high concentration spike analysis was performed with this sample lot. The percent recovery values of the high spike analysis were within the control limits, with the exception of endo-

sulfan I. The recovery of endosulfan I was below the lower control limit. This compound was not detected in any field sample. The corresponding detection limits (CRL) were qualified as estimated (UJ).

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for lot ANWT were reviewed for pesticide compounds; no false negatives or false positives were found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limit (CRL):
ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Target pesticide compounds were detected above the CRL in matrix spiked samples. Compound quantitation was verified by recalculation; no problems were found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

Several compounds not included in the Method UH20 target compound list were reported on the transfer files. These compounds were correctly flagged "T" (or "Z" for detections) by the laboratory. No action required.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. Accuracy was acceptable, as demonstrated by the percent recovery values of spiked compounds. Precision was acceptable, as demonstrated by the low RPD values of the MS/MSD set.

The DataChem QA Status Report notes a low percent recovery for endosulfan I. This compound was not detected in any field sample. The associated detection limits (CRL) are estimated (UJ), due to the possible low bias.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANWT

[illegible]



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DATA QUALITY ASSESSMENT

**TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003**

**SWMU 36
OLD BURN STAGING AREA**

Prepared for:

RUST Environment and Infrastructure
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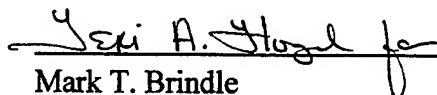
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


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EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 36	Arsenic	ANWH	B9 (SOIL)	Jason Ai	W. Jaime Bruton
	ICP Metals	ANWJ	JS12 (SOIL)	Jason Ai	W. Jaime Bruton

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: SWMU 36—OLD BURN STAGING AREA

Arsenic

One lot of arsenic analyses of soil samples using Method B9 was reviewed. All results are acceptable for use without qualification.

ICP-Metals

One lot of ICP-metal analyses of soil samples using Method JS12 was reviewed. All vanadium results less than the high spike concentration were qualified as estimated. These results are considered biased low by approximately 40% and the qualified results are slightly less precise than unqualified data. Qualification was recommended by both USAEC and EcoChem.

All antimony detection limits were rejected because of zero antimony recovery in the natural (matrix) spikes. This indicates the possibility of false negatives. The USAEC did not flag this problem because natural spikes are not part of the USAEC QA program; however, they recommend against using Method JS12 for antimony in soil samples because of known poor recovery problems.

Zinc data were qualified as estimated by the USAEC due to low spike recovery. Since the spike recovery was acceptable under Functional Guidelines, we recommend accepting the data without qualification. The results should be considered acceptable for all uses with the understanding that the results are potentially biased low by approximately 25%.

**DATA QUALITY ASSESSMENT
ARSENIC—GFAA ANALYSES: SOIL
METHOD: B9**

LOT No.: ANWH

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANWH were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody (COC) forms for Lot ANWH were completed properly, and all samples listed in the COC forms were analyzed. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for Lot ANWH samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. A minimum of 10% of the field ID and laboratory ID were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QC SUMMARY

Two sets of field duplicate samples (BRP-94-09C/BRP-94-18C and OSP-94-04C/OSP-94-07A) were analyzed and reviewed. The relative percent difference (RPD) values for these two sets of field duplicate samples were 4.9% and 6.9%, respectively.

No field blanks were submitted with Lot ANWH samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

For the initial calibration, the minimum number of standards were used, which met the method criterion. The linearity requirement of $r \geq 0.995$ was met. The laboratory analyzed a continuing calibration standard every ten samples as required. All percent recovery (%R) values of initial and continuing calibration verifications were within the control limits of 90% to 110%.

3.0 Blank Analyses: ACCEPTABLE/All criteria met.

Calibration blanks (ICB and CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. Preparation blanks were prepared with each digestion batch as required. No target analytes were detected in the blanks at or above the reporting limits.

4.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Two sets of MS/MSD analyses were performed on Samples OSP-94-01A and BRB-94-16A. The %R values for the first set of MS/MSD analyses were 196.0% and 55.0%, which were both outside the Functional Guidelines (2/94) control limit of 75% to 125%. The RPD value for the first set of MS/MSD analyses was 112.4%, which was greater than the control limit of 35%. The %R values for the second MS/MSD set were 80.7% (within control limits), and 69.7%, (less than the control limit). The RPD value for the second set of MS/MSD analyses was 14.6%, which was within the control limit of 35%.

Since MS/MSD analyses were not required in the USATHAMA program and high and low spike recovery values were within the control limits, arsenic results were not qualified due to low or high percent recovery values. However, arsenic results should be considered as estimated.

5.0 High Spike and Low Spike Analyses: ACCEPTABLE/All criteria met.

Two high spike and one low spike analyses were performed with each sample lot. The percent recovery values of both high spike analyses were 95.7% and 94.3%, which were within the control chart limits of 86.9% to 109.5%. The percent recovery value of the low spike analysis was 103.9%, which was within the control chart limit of 92.0% to 104.2%.

6.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limits for arsenic were reviewed. All reporting limits match the certified reporting limit listed in the laboratory SOP.

7.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANWH is acceptable. The laboratory noted high spike recovery values moving in an upward direction, and low spike recovery values trending above the mean. No qualification is recommended based on these observations.

The data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
Lot No.: ANWJ**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANWJ were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANWJ. All Lot ANWJ samples listed on the chain-of-custody were analyzed. Transcription errors were found in Samples BRB-94-12A, BRB-94-12B, and BRB-94-12C. These sample IDs were incorrectly reported as BRP-94-12A, BRP-94-12B, and BRP-94-12C. in the laboratory chain-of-custody, transfer file printout, and raw data. The laboratory was contacted and corrected forms have not yet been received from the laboratory. All other sample IDs were tracked from the field chain-of-custody to the transfer file printout and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample.

III. FIELD QUALITY CONTROL

No field blanks or field duplicate samples were submitted with Lot ANWJ samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of a percent recovery (%R) for thallium at 127.2%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The %R of the CCV were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated samples. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit, and no PB result was greater than the reporting limit. Aluminum, barium, calcium, chromium, iron, potassium, magnesium, manganese, vanadium, and zinc were detected in one QC blank (BL-39714-1). Since this soil blank sample (from RMA soil, R3D-381) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANWJ-1.

Discussion:

MS/MSD analyses were performed on Samples OSP-94-05A and BRB-94-12A. The MS %R value for chromium in the first set of MS/MSD analyses was 74%, which was slightly less than the lower control limit of 75%. Since the MSD %R value and relative percent difference (RPD) values were within the control limits, no action was recommended. The antimony %R values in both MS/MSD analyses were 0%, which indicates antimony analyses by ICP method were questionable. Antimony was not detected in any of the samples leading to a possibility of false non-detects. The quantitation limits for antimony were rejected and not usable for any purposes. All other %R values and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: See Qualified Data Summary Table ANWJ-1.

Discussion:

One low spike and two high spike analyses were performed with this sample lot. Recovery values were evaluated based on the control chart upper and lower limits. The %R of low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Beryllium	Acceptable	92.5% to 105.1%	99%	100%	94.2% to 98.8%
Cadmium	Acceptable	86.6% to 107.8%	98%	100%	92.4% to 97.2%
Cobalt	Acceptable	94.8% to 124.2%	Acceptable	103%	95.0% to 102.2%
Chromium	Acceptable	90.3% to 111.5%	101%	102%	96.6% to 100.4%
Copper	Acceptable	104.8% to 121.8%	Acceptable	101%	95.2% to 100.4%
Nickel	Acceptable	88.8% to 126.2%	Acceptable	101%	94.0% to 100.8%
Lead	Acceptable	88.9% to 116.9%	102%	104%	95.1% to 100.3%
Antimony	Acceptable	45.1% to 75.9%	Acceptable	87.8%	79.1% to 87.7%
Vanadium	42.0%	69.2% to 127.8%	Acceptable	Acceptable	92.8% to 101.4%
Zinc	76.7%	88.5% to 104.7%	Acceptable	Acceptable	93.7% to 100.3%

The vanadium low spike %R value was less than both the USAEC control limit and the control limit specified in Functional Guidelines (2/94). Vanadium results in field samples that were less than the high spike concentration (30 µg/g) were considered biased low and were qualified as estimated. Since both vanadium high spike %R values were within the control limits, vanadium results greater than the high spike concentration were acceptable and no other qualifications are recommended.

All other spike recovery values were close to the USAEC control limits and still within the control limit specified in Functional Guidelines (2/94), no other qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANWJ is partially acceptable. The laboratory noted high spike recovery values trending above the central line for cadmium and lead; high spike recovery values moving in a downward direction for chromium; low spike range trending above the central line for boron, beryllium, and lead; low spike recovery values trending below the central line for copper and molybdenum; low spike recovery values moving in an upward direction for cobalt, tin, tellurium and thallium; low spike recovery values moving in a downward direction for molybdenum, nickel, lead, vanadium and zinc; and low spike recovery values less than the control chart lower limits for vanadium and zinc.

Vanadium was flagged with a "7" by the laboratory indicating low spike recovery. All vanadium results that were less than the high spike concentration (30 µg/g) should be considered biased low and qualified. The zinc low spike %R value was 76.7%, which was less than the control chart lower limit of 88.5%, but within the Functional Guidelines (2/94) control limits of 75% to 125%. No qualification was recommended. No other qualifications are recommended on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANWJ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	OSP-94-05A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-05B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-05C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	OSP-94-06C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-02C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BWB-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRB-94-12C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-03C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-09A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-09B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-07C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-01C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-13C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	BRP-94-02C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Vanadium	V	J	OSP-94-05A	21.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-05B	13.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-05C	10.6 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06A	21.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06B	13.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	OSP-94-06C	16.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-01A	10.6 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-01B	15.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-02A	10.9 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-02B	7.33 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-03A	10.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BWB-94-03B	20.4 ug/g	LS %R = 42.2%	6

Qualified Data Summary Table Lot No: ANWJ

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Vanadium	V	J	BWB-94-03C	7.85 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12A	15.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12B	22.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRB-94-12C	14.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03A	21.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03B	15.1 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-03C	11.4 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-09A	12.2 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-09B	10.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07A	21.9 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07B	10.4 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-07C	6.88 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01A	20.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01B	14.7 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-01C	18.3 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13A	12.0 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13B	6.10 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-13C	4.34 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02A	12.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02B	21.8 ug/g	LS %R = 42.2%	6
Vanadium	V	J	BRP-94-02C	8.52 ug/g	LS %R = 42.2%	6



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DATA QUALITY ASSESSMENT

**TOOELE ARMY DEPOT—NORTH AREA
DAAA15-90-D-0007, TASK 0003**

**SWMU 40
AED TEST RANGE**

Prepared for:

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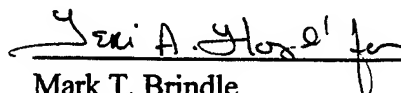
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EcoChem Project Number: 8901-30

December 20, 1994

Approved for Release:


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EcoChem, Inc.

DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on soil samples and associated laboratory quality control samples. Refer to the Sample Index for sample identifications.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

<u>SWMU</u>	<u>Test</u>	<u>Lot</u>	<u>Method (Matrix)</u>	<u>Primary</u>	<u>Secondary</u>
SWMU 40	Explosives	AMGX	LW23 (SOIL)	Mark T. Brindle	Eric Strout
	Explosives	AMIE	LW23 (SOIL)	Mark T. Brindle	Eric Strout
	Explosives	AMVC	LW23 (SOIL)	Mark T. Brindle	Eric Strout
	ICP Metals	ANCV	JS12 (SOIL)	Jason Ai	W. Jaime Bruton

Data assessment was based on the QC criteria recommended in the above listed method; the *Tooele Army Depot—North Area QC Plan*; *USEPA Functional Guidelines for Organic and Inorganic Data Review*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

Copies of the qualified transfer files are included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data Quality Assessment Worksheets, Communication, and Corrective Action Records have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.

- J Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
- UJ Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY: SWMU 40—AED TEST RANGE

Explosives

Three lots of explosives analyses of soil samples using Method LW23 were reviewed. Data for Lot AMGX are acceptable for use without qualification. Data for Lot AMIE are acceptable for use without qualification, with the exception of all CRL for 1,3,5-trinitrobenzene. All 1,3,5-trinitrobenzene detection limits were qualified as estimated due to low concentration spike accuracy deficiencies. All 1,3,5-trinitrobenzene data in Lot AMVC were rejected, (R), based on accuracy and precision deficiencies. The data for 1,3,5-trinitrobenzene are considered biased low by approximately 50%, and are unusable for any purpose. All other data in Lot AMVC are acceptable.

ICP-Metals

One lot of ICP-metal analyses of soil samples using Method JS12 were reviewed. All antimony detection limits were rejected because of zero antimony recovery in the natural (matrix) spikes. This indicates the possibility of false negatives. The USAEC did not flag this problem because natural spikes are not part of the USAEC QA program; however, they recommend against using Method JS12 for antimony in soil samples because of known poor recovery problems.

DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: AMGX

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot AMGX were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot AMGX. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot AMGX. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

Three field duplicate samples were identified in Lot AMGX as follows: three duplicate samples (ARP-94-61A, ARP-94-61B, and ARP-94-61C) which are pairs of Samples ARP-94-09A, ARP-94-09B, and ARP-94-09C, respectively. Positive results were not reported for any of the field QC samples in Lot AMGX. No evaluation of field duplicate precision (RPD) was possible.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples in Lot AMGX were extracted within four days of collection and were analyzed within 12 days of extraction. The seven-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One soil method blank was associated with the samples in Lot AMGX. Target explosives compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory used Sample ARP-94-07A for MS/MSD analyses with the samples from Lot AMGX. All percent recovery values were within control limits of 70% to 130%. All relative percent difference values were less than the maximum allowable value of 20%.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The DataChem QA Status Report noted that the recovery values for the following compounds were less than the lower control limit in the low concentration spike analyses: 1,3,5-trinitrobenzene, 2,4-dinitrotoluene, and RDX. The QA Status Report and the USAEC Control Chart Response letter recommend that the data for Lot AMGX be accepted. The low concentration spike analysis recovery values were slightly less than the lower control limits, the data are not significantly affected, and no qualifiers were assigned.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot AMGX were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

An examination of the DataChem QA Status Report that includes Lot AMGX revealed the following items: 1,3,5-trinitrobenzene, 2,4-dinitrotoluene, and RDX results in the low spike were below the lower control limit. Precision and accuracy, as demonstrated by the recovery of matrix spiking compounds, was acceptable. Field duplicate RPD values were not calculable since no target compounds were detected in the duplicate pairs. Since the outliers for this lot were only slightly outside of the lower control limits in each case, the data are not significantly affected, and no qualifiers were assigned.

All data, as reported, are acceptable for use.

**DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: AMIE**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot AMIE were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot AMIE. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot AMIE. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

No samples from Lot AMIE were identified as field quality control samples on the chain-of-custody forms.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples in Lot AMIE were extracted within three days of collection and were analyzed within 16 days of extraction. The 7-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

The results of the daily calibration standard agreed with the initial calibration standard within 25%, with the exceptions in the table below. From the AMIE daily calibration results, the area counts for HMX were greater than the upper acceptance limit; however, the exceedance was so slight that the data was not qualified. The area counts for nitrobenzene were less than the lower area acceptance limit, but no positive identifications of the two compounds were reported. The detection limits (CRL) were not qualified.

Analyte	Sample Number	Calibration Date and Time	Daily Calibration Area Count	Area Count Acceptance Limits
Nitrobenzene	All Samples in Lot AMIE	7/1/94 00:47	667.4	682.3 - 797.9
		7/1/94 05:26	640.4	
HMX		7/1/94 00:47	367.7	308.8 - 366.0

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One soil method blank was associated with the samples in Lot AMIE. Target explosives compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory used Sample ARP-94-16A for MS/MSD analyses with the samples from Lot AMIE. All percent recovery values were within control limits of 70% to 130%. All relative percent difference values were less than the maximum allowable value of 20%.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table AMIE-1.

Discussion:

The percent recovery value for 1,3,5-trinitrobenzene in the low spike was 57.6%, below the 78% lower control limit. The USAEC Chemistry Branch made the recommendation that all 1,3,5-trinitrobenzene results in Lot AMIE be estimated due to the low spike recovery values. The reviewer concurs with the recommendations.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot AMIE were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

**8.0 Compound Quantitation and Certified Reporting Limits (CRL):
ACCEPTABLE/All criteria met.**

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

An examination of the DataChem QA Status Report that includes Lot AMIE revealed the following item: 1,3,5-trinitrobenzene results in the low spike were below the lower control limit.

All 1,3,5-trinitrobenzene detection limits (CRL) were qualified as estimated (UJ) due to low spike accuracy deficiencies.

All data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: AMIE-1

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-16A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-16B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-16C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-17A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-17B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-17C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-18A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-18B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-18C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-19A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-19B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-19C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-20A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-20B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-20C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-21A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-21B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	UJ	ARP-94-21C	LT 9.22E-1	LS %R < LCL	6.0

**DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: AMVC**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot AMVC were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed. DataChem QA Status Reports and USAEC Control Chart Response were submitted. Final sample results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: Changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

Field chain-of-custody forms were present and complete for each sample in Lot AMVC. All forms were signed and dated. The field chain-of-custody forms indicated no problems with sample receipt conditions.

Laboratory chain-of-custody forms were present and complete for each sample in Lot AMVC. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory chain-of-custody forms. The field IDs and laboratory IDs for all samples were tracked from the chain-of-custody forms, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

No samples from Lot AMVC were identified as field quality control samples on the chain-of-custody forms.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All soil samples in Lot AMVC were extracted within five days of collection and were analyzed within 23 days of extraction. The seven-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a zero-intercept model standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard agreed with the initial calibration standard within 25%.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One soil method blank was associated with the samples in Lot AMVC. Target explosives compounds were not detected in the method blank at or above the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory used Sample ARP-94-57A for MS/MSD analyses with the samples from Lot AMVC. All percent recovery values were within control limits of 70% to 130%. All relative percent difference values were less than the maximum allowable value of 20%.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table AMVC-1.

Discussion:

In Lot AMVC the low concentration standard spike recovery values for 1,3,5-trinitrobenzene were significantly less than the lower control limit. The USAEC Chemistry Branch made the recommendation that all 1,3,5-trinitrobenzene results in Lot AMVC be rejected. All 1,3,5-trinitrobenzene detection limits for Lot AMVC were rejected (R).

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data for Lot AMVC were reviewed for explosives compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method. No transcription errors were noted.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method.

An examination of the DataChem QA Status Report that includes Lot AMVC revealed the following item: 1,3,5-trinitrobenzene results in the low spike were below the lower control limit.

All 1,3,5-trinitrobenzene results were rejected (R) due to low spike precision and accuracy deficiencies.

The data that are rejected (R) are unusable for any purpose. Other data, as reported, are acceptable for use.

Qualified Data Summary Table Lot No: AMVC-1

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
1,3,5-trinitrobenzene	135TNB	R	ARP-94-57A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-57B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-57C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-58A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-58B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-58C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-59A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-59B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-59C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-60A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-60B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	ARP-94-60C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01A	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01B	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01C	LT 9.22E-1	LS %R < LCL	6.0
1,3,5-trinitrobenzene	135TNB	R	OBP-94-01D	LT 9.22E-1	LS %R < LCL	6.0

**DATA QUALITY ASSESSMENT
METALS-ICP ANALYSES: SOIL
METHOD: JS12
Lot No.: ANCV**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for Lot ANCV were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package. Control charts, DataChem QA status report and USAEC control chart response were provided in this data package. Final samples results were not available at this time.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field chain-of-custody forms were present and complete for Lot ANCV. All Lot ANCV samples listed on the chain-of-custody were analyzed. Sample IDs were tracked from the field chain-of-custody to the transfer file printout and no errors were noted. Internal chain-of-custody forms clearly indicated the laboratory numbers and field sample IDs for each sample. No errors in field IDs were noted.

III. FIELD QUALITY CONTROL

No field blanks or field duplicate samples were submitted with Lot ANCV samples.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples were analyzed within the method specified holding time of 180 days from date of collection to analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Instrument calibration consisted of one blank and one standard. Instrument sensitivity could not be evaluated with the documentation provided. All calibration check standards were within $\pm 10\%$ of the true value with the exception of thallium with a percent recovery (%R) value of 121.6%. Since the %R value was greater than the upper control limit of 110% and thallium was not detected in any of the samples, no action was recommended. Plus or minus two times the standard deviation control limits were not utilized because historic calibration check results were not provided.

The laboratory analyzed a continuing calibration verification (CCV) standard every ten samples as required. The percent recovery values of the CCVs were within $\pm 10\%$ of the true value. Plus or minus two times the standard deviation control limits were not utilized because historic calibration verification results were not provided.

4.0 Blank Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

Calibration blanks (CCB) and preparation blanks (PB) were evaluated for possible contamination effects. Calibration blanks were also evaluated for causing possible low bias in associated sample results. Continuing calibration blanks were analyzed after each continuing calibration as required. A preparation blank was prepared with each digestion batch as required. No CCB result was greater than the reporting limit or less than the negative reporting limit and no PB result was greater than the reporting limit. Aluminum, barium, calcium, iron, potassium, magnesium, manganese, vanadium, and zinc were detected in one QC blank (BL-36643-1). Since this soil blank sample (from RMA soil, R3D-385) was unwashed soil, no qualifications were recommended.

5.0 Matrix Spike Sample Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See Qualified Data Summary Table ANCV-1.

Discussion:

Two sets of MS/MSD analyses were performed on Samples ARP-94-11A and ARP-94-16A. The antimony %R values in both MS/MSD analyses were 0% which indicates antimony analyses by ICP method were questionable. As antimony was not detected in any of the samples a possibility of false non-detects exists. The quantitation limits for antimony were rejected and not usable for any purposes. All other %R and RPD values were within the control limits.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

Qualified Data: None.

Discussion:

One low spike and two high spike analyses were performed with this sample lot. Analyte recovery values were evaluated based on the control chart upper and lower limits. The %R values of low spike and high spike analyses were within the control limits, with the exception of those listed in the table below.

Analyte	Low Spike	Control Limit	1st High Spike	2nd High Spike	Control Limits
Cadmium	101.6%	91.1% to 100.3%	Acceptable	Acceptable	87.3% to 122.4%
Chromium	112.0%	94.1% to 103.5%	Acceptable	Acceptable	90.6% to 107.8%
Copper	115.2%	100.6% to 111.4%	Acceptable	Acceptable	98.4% to 112.1%
Antimony	51.4%	59.0% to 85.2%	Acceptable	53.0%	55.0% to 84.0%

As these spike recovery values were close to the USAEC control limits and still within the control limits specified in Functional Guidelines (2/94), no qualifications are recommended.

7.0 Duplicate Sample Analyses: NOT APPLICABLE

Laboratory duplicate analyses were not performed with this sample lot.

8.0 ICP Interference Check Sample (ICS) Analyses: NOT PERFORMED

ICP interference check sample analyses were not performed with this sample lot.

9.0 Certified Reporting Limits (CRL): ACCEPTABLE/All criteria met.

The reporting limit for each analyte was reviewed. All reporting limits match the certified reporting limit listed in the laboratory SOP.

10.0 Calculations: ACCEPTABLE/All criteria met.

No transcription errors or calculation errors were noted in the sample result data.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified method. No technical deficiencies were found.

The USAEC Chemistry Branch Response indicates that Lot ANCV is partially acceptable. The positive antimony results should be qualified as estimated and the quantitation limits should be

rejected. The laboratory noted high spike recovery values trending above the mean for tin; high spike recovery values trending below the mean for boron, cobalt, copper, and nickel; high spike recovery values moving in an upward direction for beryllium; low spike recovery values trending above the mean for chromium; low spike range trending above the mean for chromium, nickel, antimony, and thallium; low spike recovery values moving in a downward direction for antimony; and low spike recovery values moving in an upward direction for cadmium, tin, and tellurium. No other qualification is recommended based on these observations.

The data, as qualified, are acceptable for use.

Qualified Data Summary Table Lot No: ANCV

Analyte	Code	Qualifier	Sample ID	Concentration	Reason	Report Section
Antimony	SB	R	ARP-94-11A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-11B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-11C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-12A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-12B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-12C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-13A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-13B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-13C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-14A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-14B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-14C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-15A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-15B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-15C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-16A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-16B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-16C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-17A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-17B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-17C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-18A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-18B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-18C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-19A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-19B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-19C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-20A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-20B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-20C	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-21A	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-21B	LT 19.6 ug/g	MS/MSD %R = 0%	5
Antimony	SB	R	ARP-94-21C	LT 19.6 ug/g	MS/MSD %R = 0%	5



EcoChem, Inc.

Environmental Science and Chemist

DATA QUALITY ASSESSMENT

TEAD-N Remedial Investigation Phase II
DAAA15-90-D-0007, Task Order 0003

SWMU 40
AED Test Range

ORIGINAL

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February 16, 1996

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DATA QUALITY ASSESSMENT SUMMARY

Basis for Data Quality Assessment

This report summarizes the results of data quality assessment performed on the data for soil and water samples and associated laboratory quality control sample analyses.

Samples were analyzed for the following parameters and were reviewed by the chemists listed below:

SWMU	Test	Lot	Method (Matrix)	Validation Level	Primary	Secondary
SWMU 40	SVOC	AVSY	LM25 (SOIL)	Tier 2	Sherri Wunderlich	Eric Strout
	SVOC	AVSI	UM25 (WATER)	Tier 1	Sherri Wunderlich	Eric Strout
	Explosives	AVNC	LW23 (SOIL)	Tier 2	Jason Ai	Jaime Bruton
	Explosives	AVRO	LW23 (SOIL)	Tier 1	Jason Ai	Jaime Bruton
	Explosives	AVNE	UW25 (WATER)	Tier 1	Jason Ai	Jaime Bruton
	Explosives	AVRB	UW25 (WATER)	Tier 1	Jason Ai	Jaime Bruton
	Nitrocellulose	AVVU	LF05 (SOIL)	Tier 2	Jaime Bruton	Jason Ai
	Nitrocellulose	AVWX	UF05 (WATER)	Tier 1	Jaime Bruton	Jason Ai
	Nitroguanidine	AVRR	LW30 (SOIL)	Tier 2	Jaime Bruton	Jason Ai
	Nitroguanidine	AVVS	UW29 (WATER)	Tier 1	Jaime Bruton	Jason Ai
	PETN / NG	AVRQ	LW27 (SOIL)	Tier 2	Jaime Bruton	Jason Ai
	PETN / NG	AVRT	UW27 (WATER)	Tier 1	Jaime Bruton	Jason Ai
	Ethyl Centralite	AVRP	SOP # OL-DC-EC (SOIL)	Tier 2	Jaime Bruton	Jason Ai
	Ethyl Centralite	AVRS	SOP # OL-DC-EC (WATER)	Tier 1	Jaime Bruton	Jason Ai
	Perchlorate	AWBI	SOP # IC-DC-CIO4 (SOIL)	Tier 1	Jaime Bruton	Jason Ai
	Perchlorate	AWBH	SOP # IC-DC-CIO4 (WATER)	Tier 1	Jaime Bruton	Jason Ai
	Cyanide	AVTB	KY15 (SOIL)	Tier 1	Jason Ai	Jaime Bruton
	Cyanide	AVSJ	TY23 (WATER)	Tier 1	Jason Ai	Jaime Bruton
	Nitrates	AVVA	KF17 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Nitrates	AVSC	LL8 (WATER)	Tier 1	Jason Ai	Bob Olsiewski
	Sulfate	AWAX	KT07 (SOIL)	Tier 1	Jason Ai	Bob Olsiewski
	Sulfate	AWCR	TT09 (WATER)	Tier 1	Jason Ai	Bob Olsiewski

Data assessment was based on the QC criteria recommended in the above listed methods; the *Tooele Army Depot—North Area QC Plan*; *USEPA National Functional Guidelines for Organic and Inorganic Data Review (2/94)*; and *USATHAMA (USAEC) Quality Assurance Program (PAM 11-41)*.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be

used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and method.

A summary table of all qualified data for SWMU-40 is included as **APPENDIX A**. Each lot report also contains a summary table of qualified results. Data qualifiers are defined below. A numerical code has been added to each data qualifier to indicate the reason for the qualifier. A list of all of the reason codes is included as **APPENDIX B**. Data Quality Assessment Worksheets, Communication, and Corrective Action Records (if any) have been placed in labeled envelopes with the original data packages.

DATA VALIDATION QUALIFIER CODES

U	The material was analyzed for, but was not detected. The associated numerical value is the certified reporting limit.
R	Unreliable result. Data should not be used. Analyte may or may not be present in the sample.
J	Analyte present. Reported value is an estimate that may not be accurate or precise. Data Quality Assessment Report should be consulted for reason.
UJ	Not detected. Detection limit may be inaccurate or imprecise and may not be equal to certified reporting limit. Data Quality Assessment Report should be consulted for reason.

SITE DATA QUALITY SUMMARY

Semivolatile Organics

One lot of data for the analysis of semivolatile organic compounds in soil samples using Method LM25, and one lot of water sample analyses using Method UM25 were reviewed. For the soil samples, the precision and accuracy were acceptable, based on the percent recovery values for surrogate and matrix spike analytes, and the relative percent difference values for the matrix spike/matrix spike duplicate (MS/MSD) analyses. The water sample was an equipment rinsate blank associated with the soil samples. No MS/MSD analysis was performed for the water sample, so an evaluation of precision was not possible. The accuracy was acceptable, based on the acceptable surrogate percent recovery values.

Three unknown (non-target) compounds were detected in the method blank associated with the soil samples. All results for these compounds in the associated samples were less than the action

levels (ten times the blank concentration), and were qualified as not usable (R). All remaining unknown compounds were qualified as estimated concentration with tentative identification (JN). The water matrix method blank, and the equipment rinsate blank did not contain any target or unknown compounds at concentrations equal to or greater than the certified reporting level (CRL).

For both lots of data, qualifiers were issued due to instrument sensitivity concerns noted in the initial calibration. Three compounds (pentachlorophenol, 2,4-dinitro-2-methylphenol, and kepone) had very poor response in the initial calibration standard at a concentration equivalent to the CRL for that compound. The responses were acceptable at higher concentrations. The CRL for these compounds were estimated (UJ) to reflect the possible low bias. One other compound (benzidine) had both an inadequate and erratic response. All CRL for this compound were rejected (R).

Aniline was not reported in any of the initial calibration summary pages or raw data, although a response was reported for the continuing calibrations. All CRL for aniline were rejected. All of the PCB compounds and toxaphene were not included in any of the calibration standards, and were not part of the list of compounds scanned for during sample analysis. All reported detection limits for these compounds were rejected. No other qualifiers were issued to any semivolatile analysis of soil or water samples.

Explosive Compounds

Two lots of data for analyses of explosive compounds in soil samples using Method LW23 were reviewed. The accuracy was acceptable for these lots, based on the percent recovery values for the surrogate compounds and most spiked analytes (MS/MSD for lot AVRO, low and high spike analyses for both lots). The high spike for lot AVNC had recoveries for 1,3,5-trinitrobenzene and nitrobenzene that were slightly less than the lower control limit. As the compounds were not detected in the samples, and as the low spike values were acceptable, no action was taken. The precision was acceptable, based on the relative percent difference values for duplicate (MS/MSD for lot AVRO, and high spike duplicate analyses for both lots) analyses. No qualifiers were issued to any of the soil samples.

Two lots of data for analyses of explosive compounds in water samples using Method UW25 were reviewed. The samples in the water lots were field and equipment rinsate blanks. Explosives were not detected in the blanks. The accuracy was acceptable for these lots, based on the percent recovery values for the surrogate compounds and spiked analytes (low and high spike analyses for both lots). No MS/MSD analyses were submitted for either lot. Three compounds had recovery values slightly greater than the upper control limits in the low or high spike in each of the lots. As the compounds were not detected in the samples, no action was taken. The precision was acceptable, based on the relative percent difference values for duplicate analyses of the high spike for both lots. The CRL were slightly elevated for RDX in two samples (3ER-69 and 3FB-P) in lot AVRB due to interferences. No qualifiers were issued to any of the water samples.

Nitrocellulose

One lot of data for nitrocellulose analyses of soil samples using Method LF05 was reviewed. Nitrocellulose was reported in the method blank at a high level, nearly four times the CRL for nitrocellulose. Nitrocellulose was reported in all samples at a similar level, and was qualified as not detected (U) in all samples based upon the method blank contamination. The accuracy was not acceptable. The reported percent recovery values for the spiked analytes in the high and low spikes were acceptable, however, the reported values were blank corrected prior to the calculation of the percent recovery. If the percent recoveries are recalculated without blank correction, all standard spike recoveries are above the control limit. MS/MSD analyses were also performed. The percent recovery values in the MS/MSD analyses were less than 25%. All results were rejected.

One lot of data for nitrocellulose analyses of water samples using Method UF05 was reviewed. The lot consisted of a single equipment rinsate blank associated with the soil samples. Nitrocellulose was not detected in the blank. The accuracy was acceptable for this lot, based on the percent recovery values for spiked analytes. No MS/MSD analyses were performed. Precision was acceptable, based upon the relative percent difference values of the duplicate high spike analyses. No qualifiers were issued to the water sample.

Nitroguanidine

One lot of data for nitroguanidine analyses in soil samples using Method LW30 was reviewed. The precision and accuracy were acceptable, based on the percent recovery values for spiked analytes (MS/MSD and standard spike analyses) and the relative percent difference values for duplicate (MS/MSD, high spike duplicate, and field duplicate) analyses. All positive results were estimated (J), due to a high percent recovery value in the initial calibration verification (ICV) analysis. No other qualifiers were issued.

One lot of data for nitroguanidine analyses in water samples using Method UW29 was reviewed. The lot consisted of a single equipment rinsate blank. Nitroguanidine was not detected in the blank. The precision and accuracy were acceptable, based on the percent recovery values for most spiked analytes (MS/MSD and standard spike analyses) and the relative percent difference values for duplicate (MS/MSD, high spike duplicate, and field duplicate) analyses. There was a high percent recovery value in the initial calibration verification (ICV) analysis, however, there were no positive results in the sample. No qualifiers were issued.

PETN/Nitroglycerin Analyses

One lot of data for PETN and nitroglycerin analyses in soil samples using Method LW27 was reviewed. The accuracy was acceptable, based on the percent recovery values for most spiked analytes in the low and high spikes, and the MS/MSD analyses. The percent recovery value for nitroglycerin was slightly greater than the upper control limit in the MS analysis. No action was

taken, as nitroglycerin was not detected in the samples, and as all other recoveries were acceptable. The precision was acceptable, based upon the relative percent difference values for duplicate (MS/MSD and high spike duplicate) analyses. No qualifiers were issued.

One lot of data for PETN and nitroglycerin analyses in water samples using Method UW27 was reviewed. The lot consisted of a single equipment rinsate blank. PETN and nitroglycerin were not detected in the blank. The percent recovery values in the calibration verification (CCV) analyses were less than the lower control limit of 90%. All CRL were estimated (UJ) due to the possible low bias. The accuracy was acceptable, based on the percent recovery values for most spiked analytes in the low and high spikes. MS/MSD analyses were not performed. The percent recovery value for PETN was slightly greater than the upper control limit in the low spike analysis. No action was taken, as PETN was not detected in the samples, and as all other recoveries were acceptable. The precision was acceptable, based upon the relative percent difference values for the high spike duplicate analyses.

Ethyl Centralite

One lot of data for ethyl centralite analyses in soil samples, and one lot of data for water samples using DataChem laboratory standard operating procedure (SOP) number OL-DC-EC were reviewed. The water lot consisted of field and equipment rinsate blanks. Ethyl centralite was not detected in the blanks. The precision and accuracy were acceptable for these lots, based on the percent recovery values for spiked analytes in the MS/MSD and standard spike analyses, and the relative percent difference values for MS/MSD analyses. No problems were noted, and no qualifiers were issued.

Perchlorate

One lot of data for perchlorate analyses in soil samples, and one lot of data for water samples using DataChem laboratory SOP number IC-DC-ClO4 were reviewed. The water lot consisted of a single equipment rinsate blank. Perchlorate was not detected in the blank. The accuracy was acceptable for these lots, based on the percent recovery values for most spiked analytes in the MS/MSD and standard spike analyses. The MS/MSD percent recovery values for the soil lot (SWBI) were slightly less than the recommended lower control limit of 75%. Perchlorate was not detected in the associated samples, and all perchlorate detection limits were estimated (UJ). The precision was acceptable, based on the relative percent difference values in the MS/MSD set. MS/MSD analyses were not performed for the water lot, AWBH. The precision could not be evaluated for this lot.

Conventional Parameter Analyses

One lot each of data for cyanide, nitrate, and sulfate analyses in soil samples were reviewed. The analyses were performed using methods KY15, KF17, and KT07 (respectively). The accuracy

was acceptable for these lots, based on the percent recovery values for most spiked analytes in the MS/MSD and standard spike analyses. For the sulfate analyses, the percent recoveries were slightly below the lower control limit in the low spike and one high spike analysis. No qualifiers were recommended. Precision was acceptable for all soil lots, based on the relative percent difference values in the MS/MSD analyses.

One lot each of data for cyanide, nitrate, and sulfate analyses in water samples were reviewed. The analyses were performed using methods TY23, LL8, and TT09 (respectively). The water samples consisted of equipment rinsate blanks. Nitrates were detected in the rinsate blank. The nitrate concentrations reported in the soil samples were all greater than the action levels, and no qualifiers were issued. Cyanide and sulfates were not detected in the blanks. The accuracy was acceptable for these lots, based on the percent recovery values for most spiked analytes in the standard spike analyses. For the sulfate analyses, the percent recoveries were slightly greater than the upper control limit in one high spike analysis. No qualifiers were recommended. MS/MSD analyses were not submitted for any water lot. Precision was acceptable, based on the relative percent difference values calculated for the duplicate analyses of the high spikes.

TIER II DATA QUALITY ASSESSMENT
SEMIVOLATILE ORGANIC COMPOUNDS ANALYSES: SOIL
METHOD: LM25
LOT: AVSY

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package. Results for matrix spike/matrix spike duplicate (MS/MSD) analyses were included, although they are not required by USATHAMA 11-41 for Class 1A analyses. Transfer files and DataChem QA Status Reports were provided.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed were analyzed and all forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

The laboratory submitted data for one pair of field duplicates, Samples ARS-95-10 (laboratory number 016 UC04453) and ARS-95-10 FD (laboratory number 017 UC04457, listed on the COC form as ARS-95-11). One target compound (diethylphthalate) was detected in only one of the duplicate samples, ARS-95-10. A relative percent difference (RPD) value could not be calculated. Seven unknown compounds were detected in both samples. The seven RPD values calculated for the unknown compounds ranged from 0.3% to 107.5%, with two values greater than the control limit of 50%. The reported concentrations for the unknown compounds are estimates, and a higher degree of variability is common. No data were qualified based on field duplicate precision.

No data for samples identified as field or equipment blanks were submitted with this lot.

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IV. TECHNICAL ASSESSMENT

1.0 Sample Holding Times: ACCEPTABLE/ All criteria met.

The extraction holding-time criterion listed in Method LM25 for soil matrices is 7 days from date of sampling to date of extraction. All samples in this lot were extracted 6 days after sampling. The analytical holding time criterion listed in Method LM25 for soil matrices is 40 days from date of extraction. All analyses were performed within 11 days of extraction

2.0 GC/MS Instrument Performance Check: ACCEPTABLE/All criteria met.

Decafluorotriphenylphosphine (DFTPP) was analyzed at the beginning of each calibration sequence, as required. All appropriate DFTPP data were provided and all results were within the specified control limits listed in the data package.

3.0 Initial and Continuing Calibration: ACCEPTABLE/With the following exceptions. (Qualification Codes 5A and 5B)

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

The initial calibration (ICAL) was performed at the proper frequency. Seven standards were used, meeting USATHAMA PAM 11-41 criterion for Class 1A. Percent relative standard deviation (%RSD) values were calculated by the reviewer for calibration check compounds (CCC), system performance check compounds (SPCC), and compounds for which positive results were reported in samples. All calculated %RSD values were less than the 30% upper control limit, except pentachlorophenol (PCP). When the response for the low concentration ICAL standard (5 µg/mL) was eliminated from the calculation, the %RSD value for PCP was less than 30%. This indicates that the PCP response is not stable at lower concentrations.

The certified reporting limit (CRL) for PCP is 0.76 µg/g (uncorrected for moisture content). The PCP response is not stable in the initial calibration standards with concentrations less than 20 µg/mL (equivalent to 1.25 µg/g). PCP was not detected in any sample. All reported PCP CRL are estimated (UJ-5A) because of the possible low bias caused by poor instrument sensitivity.

Several compounds had relative response factor (RRF) values less than 0.05 in the ICAL and continuing calibrations (CCAL). Eight of these compounds (β-BHC, endosulfan I, endosulfan II, δ-BHC, endrin, heptachloroepoxide, chlordane, and endrin ketone) historically have low response during GC/MS analysis. These compounds were judged by assessing the relative stability of the compound, as determined by the %RSD values in the ICAL standards. The eight compounds were judged as stable, and no qualifiers were assigned.

The RRF values for three compounds (4,6-dinitro-2-methylphenol, pentachlorophenol, and kepone) were less than 0.05 in the ICAL standard, with a concentration that is nearest the respective CRL for the compounds. The RRF values for these compounds are greater than 0.05

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in all standards at concentrations greater than the CRL. This indicates poor sensitivity for the compound at concentrations equivalent to the CRL. The CRL were consequently qualified as estimated (UJ-5A). The RRF values of benzidine in the ICAL and CCAL were less than 0.05 and judged unstable, based upon the high %RSD (55%) and %D values. The CRL in associated samples were rejected (R-5A, 5B).

Nine compounds (PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260, PCB-1262, and toxaphene) were not included in the ICAL, any of the CCAL, and were not part of the list of compounds scanned for in any sample. One compound (aniline) was reported as not detected in any of the ICAL standards. No positive results for these compounds were reported for any sample. The CRL for the PCB compounds and toxaphene were rejected (R-5A, 5B). The CRL for aniline were also rejected (R-5A).

CCAL were run at the correct frequency (before and after sample analyses) for all analytical sequences with this lot. All daily calibrations met the Method LM25 criteria.

All of the CCAL had several percent difference (%D) values greater than the $\pm 25\%$ control limits. Compounds with outlying %D values are listed in the Data Quality Assessment Worksheets. There were no positive results in any sample for compounds associated with a %D outlier. A negative outlying %D value indicates an increase in instrument sensitivity and potential positive bias. For the non-detects, the CRL for compounds associated with a negative %D value were judged not significantly affected, and no action was taken. A positive %D value indicates a loss in instrument sensitivity. The CRL for compounds with a positive %D value greater than 50% are qualified to reflect the possible low bias. Benzidine was the only compound with a positive %D value greater than 50% in one CCAL (at +50.6%). As the CRL of benzidine were already rejected (R-5A, 5B) due to low RRF values, no further action was taken.

4.0 Blank Analyses: ACCEPTABLE/With the following exceptions. (Qualification Code 7)

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

The method blank was analyzed at the proper frequency (one for each lot). No target compounds were detected in the blank, however, three unknown compounds were reported. Action levels of ten times the method blank concentration were used to evaluate sample results. Associated sample results for the unknown compounds at concentrations less than the action levels were qualified as R-7.

5.0 Surrogate Recovery: ACCEPTABLE/With the following discussion.

Surrogate compound percent recovery (%R) values were submitted and reviewed. For data assessment purposes, the surrogate %R values were compared to the limits specified in the EPA Contract Laboratory Program (CLP) 3/90 Statement Of Work (SOW). The CLP SOW does not specify recovery limits for three of the USATHAMA-specific surrogate compounds

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(1,3-dichlorobenzene-d4, di-n-octylphthalate-d4, and diethylphthalate-d4). For these compounds, a recovery range of 20% to 130% was used to assess the field sample results. The range is the same as the range recommended in the CLP SOW for new surrogate compounds. All surrogate %R values were within the limits specified by EPA CLP 3/90 SOW. For surrogate compounds not specified in the EPA CLP 3/90 SOW, all %R values were within the 20% to 130% recovery range.

It was also noted that in the 16 field sample analyses, all analyses each had from two-to-seven %R values outside the acceptance range specified by the control charts. The surrogate recovery limits and outliers are listed in the Data Quality Screening Tool Summary. As the surrogate %R values were not significantly outside the control chart limits, no qualifiers were issued to the samples based on control chart surrogate %R value outliers.

6.0 Matrix Spike/Matrix Spike Duplicate Sample Analyses: ACCEPTABLE/All criteria met.

Sample ARS-95-11 was selected by the laboratory for matrix spike/matrix spike duplicate (MS/MSD) analyses. No quality control criteria for MS/MSD analyses are specified in USATHAMA PAM 11-41 or the laboratory method. All spiking compounds in the MS/MSD analyses satisfied EPA %R and RPD criteria. No calculation or transcription errors were found.

7.0 Laboratory Control Sample: ACCEPTABLE/With the following discussion.

Raw data for laboratory control sample (LCS) QC-105129-1 were submitted by the laboratory. Since no LCS results summary form was provided in the data package, and as all MS/MSD results were acceptable, an evaluation of LCS results was not performed.

8.0 Internal Standards Performance: ACCEPTABLE/All criteria met.

Analysis of areas and retention times for internal standards was conducted (see Data Quality Assessment Worksheets). No quality control criteria for internal standards are specified in USATHAMA PAM 11-41 or the laboratory method. For data assessment purposes, the criteria from *National Functional Guidelines* (U.S. EPA, 1994) was used to assess the internal standards.

All internal standard areas were within the acceptance window of 50% to 200% of the continuing calibration internal standard area. All retention times were within ± 30 seconds of the continuing calibration internal standard retention time.

9.0 Compound Identification: ACCEPTABLE/All criteria met.

All target compound identifications were reviewed and were acceptable.

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10.0 Compound Quantitation and Certified Reporting Limits: ACCEPTABLE/All criteria met.

The quantitation of target analytes were reviewed by recalculation. See the Data Quality Assessment Worksheets for an example of compound quantitation. The certified reporting limits met those listed in Method LM25. No transcription errors were noted.

11.0 Unknown Compounds: ACCEPTABLE/With the following discussion.
(Qualification Codes 7 and 14)

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

Mass spectral library searches to identify unknown (non-target) compounds were performed as required. As mentioned in SECTION 4.0, unknown compounds also found in the associated method blank were qualified as R-7. All remaining unknowns were qualified as estimated with tentative identification (JN-14).

12.0 System Performance: ACCEPTABLE/All criteria met.

No signs of degraded instrument performance were observed. The analytical system was judged to have been in tune, within control, and stable during the course of these analyses.

V. OVERALL ASSESSMENT

On the basis of this evaluation, the laboratory followed the specified analytical method.

Laboratory precision was acceptable according to MS/MSD and most field duplicate RPD values. Accuracy was acceptable, as demonstrated by surrogate spike and MS/MSD recovery values.

Data qualifiers were assigned as a result of ICAL and CCAL criteria outliers, instrument sensitivity concerns noted in the initial calibration standards, and method blank contamination (of unknown compounds). Remaining unknowns were qualified JN.

Data that are rejected are unusable for any purpose. All other data, as qualified, are acceptable for use.

DATA QUALIFIER SUMMARY TABLE FOR LOT AVSY

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Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-01	003 UC04398	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-01	003 UC04398	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-01	003 UC04398	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-01	003 UC04398	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-01	003 UC04398	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
ARS-95-01	003 UC04398	SOIL	LM25	UNK642	0.600	SB	R-7	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	UNK562	10.0	SB	R-7	UGG
ARB-95-01B	004 UC04402	SOIL	LM25	UNK642	0.700	SB	R-7	UGG
ARS-95-02	005 UC04406	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-02	005 UC04406	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-02	005 UC04406	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG

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Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-02	005 UC04406	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-02	005 UC04406	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-02	005 UC04406	SOIL	LM25	UNK562	6.00	SB	R-7	UGG
ARS-95-02	005 UC04406	SOIL	LM25	UNK642	0.600	SB	R-7	UGG
ARS-95-03	006 UC04413	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-03	006 UC04413	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-03	006 UC04413	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-03	006 UC04413	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-03	006 UC04413	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
ARS-95-03	006 UC04413	SOIL	LM25	UNK642	0.700	SB	R-7	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG

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Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARB-95-03B	007 UC04417	SOIL	LM25	UNK563	10.0	SB	R-7	UGG
ARB-95-03B	007 UC04417	SOIL	LM25	UNK642	0.300	SB	R-7	UGG
ARS-95-04	008 UC04421	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-04	008 UC04421	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-04	008 UC04421	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-04	008 UC04421	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-04	008 UC04421	SOIL	LM25	UNK562	6.00	SB	R-7	UGG
ARS-95-04	008 UC04421	SOIL	LM25	UNK642	0.800	SB	R-7	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	UNK562	5.00	SB	R-7	UGG
ARB-95-04B	009 UC04425	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
ARS-95-05	010 UC04429	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-05	010 UC04429	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-05	010 UC04429	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG

DATA QUALIFIER SUMMARY TABLE FOR LOT AVSY

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Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-05	010 UC04429	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-05	010 UC04429	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-05	010 UC04429	SOIL	LM25	UNK563	20.0	SB	R-7	UGG
ARS-95-05	010 UC04429	SOIL	LM25	UNK642	0.400	SB	R-7	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	UNK562	10.0	SB	R-7	UGG
ARB-95-05B	011 UC04433	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
ARS-95-06	012 UC04437	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-06	012 UC04437	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-06	012 UC04437	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG

DATA QUALIFIER SUMMARY TABLE FOR LOT AVSY

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-06	012 UC04437	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-06	012 UC04437	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-06	012 UC04437	SOIL	LM25	UNK562	5.00	SB	R-7	UGG
ARS-95-06	012 UC04437	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
ARS-95-07	013 UC04441	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-07	013 UC04441	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-07	013 UC04441	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-07	013 UC04441	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-07	013 UC04441	SOIL	LM25	UNK562	9.00	SB	R-7	UGG
ARS-95-07	013 UC04441	SOIL	LM25	UNK642	0.800	SB	R-7	UGG
ARS-95-08	014 UC04445	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-08	014 UC04445	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-08	014 UC04445	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-08	014 UC04445	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-08	014 UC04445	SOIL	LM25	UNK562	6.00	SB	R-7	UGG
ARS-95-08	014 UC04445	SOIL	LM25	UNK642	0.400	SB	R-7	UGG
ARS-95-09	015 UC04449	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-09	015 UC04449	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-09	015 UC04449	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG

DATA QUALIFIER SUMMARY TABLE FOR LOT AVSY

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Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-09	015 UC04449	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-09	015 UC04449	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-09	015 UC04449	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
ARS-95-09	015 UC04449	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
ARS-95-10	016 UC04453	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARS-95-10	016 UC04453	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARS-95-10	016 UC04453	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARS-95-10	016 UC04453	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARS-95-10	016 UC04453	SOIL	LM25	UNK562	5.00	SB	R-7	UGG
ARS-95-10	016 UC04453	SOIL	LM25	UNK642	0.600	SB	R-7	UGG
ARS-95-11	017 UC04457	SOIL	LM25	46DN2C	LT 0.800	D	UJ-5A	UGG
ARS-95-11	017 UC04457	SOIL	LM25	ANIL	ND 0.130	RD	R-5A	UGG
ARS-95-11	017 UC04457	SOIL	LM25	BENZID	ND 0.130	RD	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	KEP	ND 1.30	RD	UJ-5A	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB016	LT 0.320	D	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB221	ND 0.320	RD	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB232	ND 0.320	RD	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB242	ND 0.320	RD	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB248	ND 0.320	RD	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB254	ND 0.320	RD	R-5A, 5B	UGG

**DATA QUALIFIER SUMMARY TABLE
FOR LOT AVSY**

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-11	017 UC04457	SOIL	LM25	PCB260	LT 0.790	D	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCB262	LT 6.30	D	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	PCP	LT 0.760	D	UJ-5A	UGG
ARS-95-11	017 UC04457	SOIL	LM25	TXPHEN	LT 12.0	D	R-5A, 5B	UGG
ARS-95-11	017 UC04457	SOIL	LM25	UNK562	10.0	SBD	R-7	UGG
ARS-95-11	017 UC04457	SOIL	LM25	UNK642	0.900	SBD	R-7	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
ARB-95-02B	020 UC04465	SOIL	LM25	UNK642	0.500	SB	R-7	UGG

**TIER I DATA QUALITY ASSESSMENT
SEMIVOLATILE ANALYSES: WATER
METHOD: UM25
LOT: AVSI**

Analytical data for one water sample were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- GC/MS Instrument Performance Check
- * Initial and Daily Calibration
- Blank Analyses
- * Surrogate Recovery
- Internal Standards Performance
- Compound Identification
- Compound Quantitation and Certified Reporting Limits (CRL)
- Unknown Compounds
- System Performance

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Initial and Daily Calibration (Qualification Codes 5A and 5B)

The initial calibration (ICAL) was performed at the proper frequency. Seven standards were used, meeting USATHAMA PAM 11-41 criterion for Class 1A. Percent relative standard deviation (%RSD) values were calculated by the reviewer for calibration check compounds (CCC) and system performance check compounds (SPCC). All calculated %RSD values were less than the 30% upper control limit, except pentachlorophenol (PCP). When the response for the low concentration ICAL standard (5 µg/mL) was eliminated from the calculation, the %RSD value for PCP was less than 30%. This indicates that the PCP response is not stable at lower concentrations.

The certified reporting limit (CRL) for PCP is 9.1 µg/L. The PCP response is not stable in the initial calibration standards with concentrations less than 20 µg/L. PCP was not detected in the sample. The reported PCP CRL is estimated (UJ-5A) because of possible low bias caused by poor instrument sensitivity.

Several compounds had relative response factor (RRF) values less than 0.05 in the ICAL and continuing calibrations (CCAL). Eight of these compounds (β -BHC, endosulfan I, endosulfan II, δ -BHC, endrin, heptachloroepoxide, chlordane, and endrin ketone) historically have low response during GC/MS analysis. These compounds were judged by assessing the relative stability of the compound, as determined by the %RSD values in the ICAL standards. The eight compounds were judged as stable, and no qualifiers were assigned.

The RRF values for three compounds (4,6-dinitro-2-methylphenol, pentachlorophenol, and kepone) were less than 0.05 in the ICAL standard with a concentration that is nearest the respective CRL for the compounds. The RRF values for these compounds are greater than 0.05 in all standards at concentrations greater than the CRL. This indicates poor sensitivity for the compound at concentrations equivalent to the CRL. The CRL were consequently qualified as estimated (UJ-5A). The RRF values of benzidine in the ICAL and CCAL were less than 0.05 and judged unstable, based upon the high %RSD (55%) and %D values. The CRL in associated samples were rejected (R-5A, 5B).

Nine compounds (PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260, PCB-1262, and toxaphene) were not included in the ICAL, any of the CCAL, and were not part of the list-of-compounds scanned for in any sample. One compound (aniline) was reported as not detected in any of the ICAL standards. No positive results for these compounds were reported for any sample. The CRL for the PCB compounds and toxaphene were rejected (R-5A, 5B). The CRL for aniline were also rejected (R-5A).

CCAL were run at the correct frequency (before and after sample analyses) for all analytical sequences with this lot. All daily calibrations met the Method UM25 criteria.

All of the CCAL had several percent difference (%D) values greater than the $\pm 25\%$ control limits. Compounds with outlying %D values are listed in the Data Quality Assessment Worksheets. There were no positive target compound results for compounds associated with a %D outlier. A negative outlying %D value indicates an increase in instrument sensitivity and potential positive bias. For the non-detects, the CRL for compounds associated with a negative %D value were judged not significantly affected, and no action was taken. A positive %D value indicates a loss in instrument sensitivity. The CRL for compounds with a positive %D value greater than 50% are qualified to reflect the possible low bias. Benzidine was the only compound with a positive %D value greater than 50% in one CCAL (at +50.6%). As the CRL of benzidine were already rejected (R-5A,5B) for low RRF values, no further action was taken.

Surrogate Recovery

Surrogate compound percent recovery (%R) values were submitted and reviewed. For data assessment purposes, the surrogate %R values were compared to the limits specified in the EPA Contract Laboratory Program (CLP) 3/90 Statement Of Work (SOW). The CLP SOW does not specify recovery limits for three of the USATHAMA-specific surrogate compounds (1,3-dichlorobenzene-d4, di-n-octylphthalate-d4, and diethylphthalate-d4). For these compounds, a recovery range of 16% to 110% was used to assess the field sample results. The range is the

same as the range recommended in the CLP SOW for new base/neutral surrogate compounds. All surrogate %R values were within the limits specified by EPA CLP 3/90 SOW for Sample 3ER-70. For surrogate compounds not specified in the EPA CLP3/90 SOW, all %R values were within the 16% to 110% recovery range for Sample 3ER-70. Three surrogate %R values for the method blank were greater than control limits. The outliers are listed in the Data Quality Assessment Worksheets. Qualifiers are not assigned to method blanks.

It was also noted that Sample 3ER-70 contained two %R values outside the acceptance range specified by the control charts. The surrogate recovery limits and outliers are listed in the Data Quality Screening Tool summary. No qualifiers were issued to the samples based on control chart surrogate %R value outliers.

Sample Quantitation and Certified Reporting Limits

The certified reporting limits (CRLs) met those listed in Method UM25, except for three compounds (naphthalene, 2,3,6-trichlorophenol, and di-n-octylphthalate). The reported detection limits for these compounds were slightly greater than the method CRL. See the Data Quality Screening Tool print-out for more details. No action was taken, other than to note the discrepancy.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was not evaluated, as no MS/MSD, laboratory duplicate, or field duplicate analyses were performed. Accuracy was acceptable, as demonstrated by most of the surrogate %R values being within control limits.

Data qualifiers were assigned as a result of ICAL and CCAL criteria outliers, and instrument sensitivity concerns noted in the initial calibration standards.

Data that are rejected are unusable for any purpose. All other data, as qualified, are acceptable for use.

DATA QUALIFIER SUMMARY TABLE FOR LOT AVSI

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
3ER-70	002 UC04463	WATER	UM25	46DN2C	ND 50.0	R	UJ-5A	UGL
3ER-70	002 UC04463	WATER	UM25	ANIL	ND 2.00	R	R-5A	UGL
3ER-70	002 UC04463	WATER	UM25	BENZID	ND 2.00	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	KEP	ND 20.0	R	UJ-5A	UGL
3ER-70	002 UC04463	WATER	UM25	PCB016	ND 9.10	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCB221	ND 9.10	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCB232	ND 9.10	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCB242	ND 9.10	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCB248	ND 9.10	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCB254	ND 9.10	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCB260	ND 13.0	R	R-5A, 5B	UGL
3ER-70	002 UC04463	WATER	UM25	PCP	LT 9.10		UJ-5A	UGL
3ER-70	002 UC04463	WATER	UM25	TXPHEN	ND 17.0	R	R-5A, 5B	UGL

**TIER II DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: WATER
METHOD: LW23
LOT: AVNC**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM-11-41 requirements for this data package.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; no correction fluid or tape was found on any raw data; the proper units for numerical values were used; and, all laboratory notebook pages and strip chart printouts were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete and all samples listed were analyzed. All forms were signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples. All forms were signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, transfer files, laboratory notebooks, and the raw data. No discrepancies were found.

III. FIELD QUALITY CONTROL

One pair of field duplicate samples (ARP-95-03C and ARP-95-03CFD) from this lot was identified as a field quality control sample set. Target explosive compounds were not detected in the field duplicate samples at concentrations greater than or equal to the reporting limits. Field duplicate relative percent difference (RPD) values were not calculable.

No field equipment blanks were submitted for this lot.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples in this lot were extracted within 7 days of collection and were analyzed within 15 days of extraction. For each sample, the 7-day extraction holding time and 40-day analysis holding time limits were met.

2.0 Instrument Calibration: ACCEPTABLE/All criteria met.

The appropriate number of calibration standards were used to generate a standard curve for explosives compounds. Linearity was acceptable for the standard curves. Recalculation results of the regression statistics for the curves agreed with the laboratory values.

3.0 Daily Calibration: ACCEPTABLE/With the following discussion.

The results of the daily calibration standard agreed with the initial calibration standard within 15%, except 2,4-dinitrotoluene in one continuing calibration (12/29/95) standard at 15.7%. Since 2,4-dinitrotoluene was not detected in any of the samples, and since the reporting limits were determined to not be affected, no action was taken. The daily calibrations were performed at the proper frequency.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One method blank was associated with the samples in this lot. Target explosive compounds were not detected in the method blank at concentrations greater than or equal to the reporting limits.

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: NOT PERFORMED.

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on samples in this lot. No action was taken on this basis.

6.0 High Spike and Low Spike Analyses: ACCEPTABLE/With the following discussion.

One low spike and two high spike analyses were performed with this sample lot. The low/high spike percent recovery (%R) values were evaluated based on the control chart upper and lower limits. The high spike %R values for 1,3,5-trinitrobenzene (90.4% and 90.0%) and nitrobenzene (86.6% and 86.2%) were less than the lower control limits of 92.7% for 1,3,5-trinitrobenzene and 92.8% for nitrobenzene. Since these two compounds were not detected in any of the samples, and since the low spike %R values for these two compounds were within the control limits, no qualifiers were assigned on this basis. All other low spike and high spike %R values were within the control limits.

7.0 Duplicate Sample Analyses: NOT PERFORMED.

Laboratory duplicate analyses were not performed with this sample lot; however, the RPD values between the two high spike samples were evaluated. The RPD values ranged from 0.1% to 0.46% and were less than the maximum control limits. The laboratory precision was acceptable.

8.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data were reviewed for explosive compounds; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

9.0 Compound Quantitation and Certified Reporting Limits: ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating sample results from the raw data. No discrepancies were found. The reporting limit for each analyte was reviewed. All reporting limits matched the certified reporting limit listed in the laboratory SOP.

10.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified methods.

Accuracy was acceptable, as demonstrated by most of the %R values for the laboratory control sample compounds, except where noted. Precision was acceptable, as demonstrated by the RPD values for the high spike analyses.

The data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: SOIL
METHOD: LW23
LOT: AVRO**

Analytical data for 25 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The samples were collected from November 29 through 30, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Daily Calibration
- Blank Analyses
- * Laboratory Control Sample Analyses
- * Field Duplicate Analyses
- * Matrix Spike/Matrix Spike Duplicate Analyses
- * Compound Identification
- Chromatogram Quality
- Compound Quantitation and Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

Laboratory control sample (LCS) analyses were performed at the required frequency. Most percent recovery (%R) and relative percent difference (RPD) values were within control limits. The %R and RPD value outliers are listed in the Data Quality Assessment Worksheets. In the professional judgment of the reviewer, no qualification of the sample results on the basis of the %R values in the LCS analyses was necessary.

Field Duplicate Analyses

Two field duplicate sets (OBS-95-34/OBS-95-34FD and ARS-95-10/ARS-95-10FD) were analyzed by the laboratory. No positive results were reported in Samples OBS-95-34 or OBS-95-34FD; field duplicate RPD values were not calculable. Positive results for RDX were reported in Samples ARS-95-10 and ARS-95-10FD at concentrations (corrected for moisture) of 5.34 µg/g and 40.9 µg/g, respectively. The RPD value of RDX was 153.9%, which was greater

than the 50% control limit. Positive results for HMX and tetryl were reported for Sample ARS-95-10FD, but not for ARS-95-10. No qualifiers were assigned based on field duplicate results.

Matrix Spike/Matrix Spike Duplicate Analyses

Sample ARS-95-10FD was selected for matrix spike/matrix spike duplicate (MS/MSD) analyses. All %R values were within control limits, except for 2,4-dinitrotoluene. The %R values of 2,4-dinitrotoluene in the MS/MSD analyses were greater than the 28% to 89% control limits at 94% and 98%, respectively. In the professional judgment of the reviewer, no qualification of the sample results on the basis of 2,4-dinitrotoluene %R value was necessary. All RPD values were within control limits.

Compound Identification

Several positive results were C-flagged by the laboratory to indicate that the results were confirmed by a second column. A result for RDX in Sample ARS-95-05 was Q-flagged by the laboratory to denote that the compound was not confirmed on the second column because of matrix interference. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the RPD values of the MS/MSD and the LCS analyses being within control limits. Accuracy was acceptable, as demonstrated by the LCS and MS/MSD %R values being within control limits, except where previously noted.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: WATER
METHOD: UW25
LOT: AVNE**

Analytical data for one water sample was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 20, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Daily Calibration
- Blank Analyses
- * Laboratory Control Sample Analyses
- Compound Identification
- Chromatogram Quality
- Compound Quantitation and Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

Laboratory control sample (LCS) analyses were performed by the laboratory at the required frequency. Three of the percent recovery (%R) values for high spike analyses were greater than the control limits. The %R value outliers are listed in the Data Quality Assessment Worksheets. As the %R values were within the laboratory control limits for these analytes in the low spike analysis, and as these three high spike %R values were reasonable, no qualifiers were assigned on the basis of these LCS results.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the LCS analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the compliant LCS %R values, except where previously noted.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
EXPLOSIVES ANALYSES: WATER
METHOD: UW25
LOT: AVRB**

Analytical data for three water samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The samples were collected from November 29 through 30, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Daily Calibration
- Blank Analyses
- * Laboratory Control Sample Analyses
- Compound Identification
- Chromatogram Quality
- * Compound Quantitation and Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

Laboratory control sample (LCS) analyses were performed at the required frequency by the laboratory. Two low spike LCS analytes and one high spike LCS analyte were greater than the laboratory control limits. The %R and RPD value outliers are listed in the Data Quality Assessment Worksheets. As there were no positive results reported in associated samples, no action was taken.

Compound Quantitation and Certified Reporting Limits

The certified reporting limits (CRLs) for RDX in Samples 3ER-69 and 3FB-P were elevated and K-flagged by the laboratory to denote that the CRLs were raised because of interferences. The CRL for 1,3,5-trinitrobenzene in Sample 3ER-70 was also elevated by the laboratory. A positive result for 1,3,5-trinitrobenzene was found in the original analysis of Sample 3ER-70 but was not confirmed on a second column. The 1,3,5-trinitrobenzene result for 3ER-70 was U-flagged by the laboratory. No action was required.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by most of the relative percent difference (RPD) values of the LCS analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the LCS %R values being within control limits, except where previously noted.

All data, as reported, are acceptable for use.

**TIER II DATA QUALITY ASSESSMENT
NITROCELLULOSE ANALYSES: SOIL
METHOD: LF05
LOT: AVVU**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed were analyzed and all forms signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all forms signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, the transfer files, laboratory notebooks, and the raw data.

III. FIELD QUALITY CONTROL

The data for one field duplicate set (ARS-95-10/ARS-95-11) were submitted for review. Nitrocellulose was detected in these two samples at concentrations of 104 µg/g and 77.8 µg/g, respectively. The relative percent difference (RPD) value was within the control limit of 50% at 28.5%. However, these two nitrocellulose results were qualified as not detected because of the blank contamination.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

Holding times were not listed in the method. All samples in this lot were extracted within 15 days of collection and were analyzed within 3 days of extraction. Sample results were not qualified on this basis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

The appropriate number of calibration standards were used to generate a least squares model linear standard curve. The correlation coefficient was greater than 0.995, indicated acceptable linearity. The correlation coefficient, the slope and y intercept were calculated by the reviewer. The results of the regression statistics for the curve did not exactly agree with the laboratory values. However, as both the recalculated results and reported results are acceptable, no qualification of sample results was performed by the reviewer.

3.0 Daily Calibration: ACCEPTABLE/All criteria meet.

The results of the daily calibration standard were calculated by the reviewer and agreed with the initial calibration high standard within the 90% to 110% criteria. The daily calibrations were performed at the proper frequency.

4.0 Blank Analysis: ACCEPTABLE/With the following exceptions.

Qualified Data: See the data qualifier table, TABLE AVVU.

Discussion:

One method blank was associated with the samples in this lot. Nitrocellulose was quantitated at 86.7 µg/g. All associated sample results were less than the action level of 434 µg/g and have been qualified as not detected and flagged U-7.

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/With the following exceptions.

Qualified Data: See the data qualifier table, TABLE AVVU.

Discussion:

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analyses on Sample ARS-95-11. The DataChem QA Status Report control charts does not specify percent recovery (%R) limits and relative percent difference (RPD) limits for MS/MSD analyses.

The %R values for nitrocellulose of the MS/MSD samples were 22.0% and -21.3%, respectively. Because of the low recovery of this analyte in the MS/MSD analyses, all not detected results (including those qualified as not detected because of blank contamination) in the associated samples were qualified as rejected (R-7, 8). The RPD value for nitrocellulose was within the control limit of 50% at 42.9%.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/With the following discussion.

The results of the low and two high spike sample results were blank subtracted by the laboratory before the %R values for nitrocellulose were calculated. The %R values were 67.9%, 73.6%, and

89.4% respectively. These values are within the control limits established for this analyte. As the laboratory subtracted the blank from these three samples only and not the field samples, the reviewer recalculated the %R values using the unsubtracted values. Recalculated %R values were 211%, 102%, and 118%, which are all greater than the respective upper control limit. No qualification of data was required as all sample results were previously qualified as not detected.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The raw data were reviewed for nitrocellulose; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits: ACCEPTABLE/With the following discussion.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified analytical method.

Accuracy was not acceptable, as demonstrated by the %R values of the MS/MSD and standard spike recovery values. Precision was acceptable, as demonstrated by the RPD value of the MS/MSD samples.

Data were rejected and assigned an R-7,8 qualifier as a result of low MS/MSD %R values and method blank contamination.

All data are not acceptable for use.

**DATA QUALIFIER SUMMARY TABLE
FOR LOT AVVU**

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-01	005 UC04395	SOIL	LF05	NC	152		R-7,8	UGG
ARB-95-01B	006 UC04399	SOIL	LF05	NC	87.3		R-7,8	UGG
ARS-95-02	007 UC04403	SOIL	LF05	NC	144		R-7,8	UGG
ARB-95-02B	008 UC04407	SOIL	LF05	NC	88.4		R-7,8	UGG
ARS-95-03	009 UC04410	SOIL	LF05	NC	172		R-7,8	UGG
ARB-95-03B	010 UC04414	SOIL	LF05	NC	173		R-7,8	UGG
ARS-95-04	011 UC04418	SOIL	LF05	NC	63.9		R-7,8	UGG
ARB-95-04B	012 UC04422	SOIL	LF05	NC	149		R-7,8	UGG
ARS-95-05	013 UC04426	SOIL	LF05	NC	180		R-7,8	UGG
ARB-95-05B	014 UC04430	SOIL	LF05	NC	144		R-7,8	UGG
ARS-95-06	015 UC04434	SOIL	LF05	NC	162		R-7,8	UGG
ARS-95-07	016 UC04438	SOIL	LF05	NC	140		R-7,8	UGG
ARS-95-08	017 UC04442	SOIL	LF05	NC	121		R-7,8	UGG
ARS-95-09	018 UC04446	SOIL	LF05	NC	97.3		R-7,8	UGG
ARS-95-10	019 UC04450	SOIL	LF05	NC	148		R-7,8	UGG
ARS-95-11	020 UC04454	SOIL	LF05	NC	111	D	R-7,8	UGG

**TIER I DATA QUALITY ASSESSMENT
NITROCELLULOSE: WATER
METHOD: UF05
LOT: AVWX**

Analytical data for one equipment rinsate blank was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- * Technical Holding Times
 - Initial Calibration
 - Initial and Continuing Calibration Verification
 - Blanks (Method, ICB, CCB)
 - Standard Spikes
- * Duplicate Sample
- * Spiked Sample Analyses (MS/MSD)
- Certified Reporting Limits (CRL)

Technical Holding Times

Holding times were not listed in the method. Sample 3ER-70 was extracted 19 days after sample collection and analyzed one day after sample extraction. As the sample is a field equipment rinsate blank, results were not qualified on this basis.

Duplicate Sample

Duplicate sample analysis was not performed with this sample lot. No qualification of data has been performed as duplicate analysis is not required.

Spiked Sample Analyses

Matrix spike/matrix spike duplicate (MS/MSD) sample analysis was not performed with this sample lot. As the sample is a field equipment rinsate blank, no qualification of data has been performed.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference value of high spike samples. Accuracy was acceptable, as demonstrated by the standard spike samples percent recovery values being within control limits.

All data, as reported, are acceptable for use.

**TIER II DATA QUALITY ASSESSMENT
NITROGUANIDINE: SOIL
METHOD: LW30
LOT: AVRR**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed were analyzed and all forms signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all forms signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, the transfer files, laboratory notebooks, and the raw data.

III. FIELD QUALITY CONTROL

The data for one field duplicate set (ARS-95-10/ARS-95-11) were submitted for review. Field duplicate relative percent difference (RPD) values were less than the 50% RPD control limit at 45.6%.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

Holding times were not listed in the method. All samples in this lot were extracted within 4 days of collection and were analyzed within 8 days of extraction. The holding times were judged to be acceptable.

2.0 Instrument Calibration: ACCEPTABLE/With the following exception.

Qualified Data: See the DATA QUALIFIER SUMMARY TABLE

Discussion:

The appropriate number of calibration standards were used to generate a least squares model linear standard curve. The correlation coefficient was greater than 0.995 indicating acceptable linearity. The correlation coefficient, the slope and y intercept were calculated by the reviewer. The results of the regression statistics for the curve did not exactly agree with the laboratory values. However, as both the reported and recalculated values were acceptable, no qualification of sample results was performed by the reviewer.

The percent recovery (%R) value nitroguanidine in the initial calibration verification (ICV) solution was 125%, which was greater than the upper control limit of 110%. All positive results were qualified as estimated (J-5A).

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard were calculated by the reviewer and agreed with the initial calibration high standard within the 90% to 110% criteria. The daily calibrations were performed at the proper frequency.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One method blank was associated with the samples in this lot. Nitroguanidine was not detected in the method blank at concentrations equal to or greater than the certified reporting limit (CRL).

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/All criteria met.

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analyses on Sample ARS-95-11. The %R values of the MS/MSD samples were 113.8% and 112.8%, respectively. These %R values are within the high spike control limits of 91.4% to 136.6%. The relative percent difference (RPD) value of 0.88% was less than the 50% control limit.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/All criteria met.

The %R values of the low and two high spike sample results were within the specified control limits. The RPD value of 10.5% between the two high spike analyses was less than the MS/MSD RPD control limit of 50%.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data were reviewed for nitroguanidine; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits: ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified analytical method.

Accuracy was acceptable, as demonstrated by the %R values of the MS/MSD and standard spike recovery values. Precision was acceptable as demonstrated by acceptable RPD values.

Qualification of sample data was required because of a high %R value of the ICV solution.

All data, as qualified, are acceptable for use.

DATA QUALIFIER SUMMARY TABLE FOR LOT AVRR

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-01	005 UC04396	SOIL	LW30	NQ	0.0807		J-5A	UGG
ARS-95-05	013 UC04427	SOIL	LW30	NQ	0.209		J-5A	UGG
ARS-95-09	018 UC04447	SOIL	LW30	NQ	0.350		J-5A	UGG
ARS-95-10	019 UC04451	SOIL	LW30	NQ	0.148		J-5A	UGG
ARS-95-11	020 UC04455	SOIL	LW30	NQ	0.235	D	J-5A	UGG

**TIER I DATA QUALITY ASSESSMENT
NITROGUANIDINE: WATER
METHOD: UW29
LOT: AVVS**

Analytical data for one equipment rinsate blank was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- * Technical Holding Times
Initial Calibration
- * Initial and Continuing Calibration Verification
Blanks (Method, ICB, CCB)
Standard Spikes
- * Duplicate Sample
Spiked Sample Analyses (MS/MSD)
Certified Reporting Limits (CRL)

Technical Holding Times

Holding times were not listed in the method. Sample 3ER-70 was extracted 12 days after sample collection and analyzed zero day after sample extraction. Sample results were not qualified on this basis.

Initial Calibration Verification

The initial calibration verification (ICV) percent recovery (%R) value was greater than the upper control limit of 110% at 125.4%. Since nitroguanidine was not detected in any of the samples, and since the not detected results were determined not affected, no action was taken.

Duplicate Sample

Duplicate sample analysis was not performed with this sample lot. No qualification of data has been performed, since duplicate analysis is not required.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the criteria-compliant relative percent difference (RPD) values of the matrix spike/matrix spike duplicate (MS/MSD) analyses. Accuracy was acceptable, as demonstrated by the MS/MSD and low/high spike %R values being within control limits.

All data, as reported, are acceptable for use.



Case Narrative

Analysis: Nitroguanidine
Preparation SOP #: UW29
Analysis SOP#: UW29
Lot/Release/SDG #: AVVS
DCL Set ID's: U95-0656-40

Client: Rust E&I
Account: 03224
Matrix: Water

General Set Information: There were three samples in lot AVVS.

Method Summary: A portion of the water samples were filtered through a 0.45 μ Teflon filter prior to being injected into a HPLC equipped with UV detection. Prior to sample analysis, the instrument was adjusted to the proper operating parameters and allowed to equilibrate until a stable baseline was established. Calibration standards were analyzed and a linear calibration curve was generated from the data. A continuing calibration standard was analyzed at the end of the sample analysis. The response of the continuing calibration standard was verified to be within method limits.

Samples and QCs were analyzed under identical conditions as those used for initial and continuing calibration. Quantitation was based on a calibration curve using the initial calibration standards. Sample results were reported in $\mu\text{g/L}$.

Sample Preparation: There were no anomalies associated with the preparation of these samples.

Holding Times: All samples were extracted and analyzed within method specified holding times.

Dilution(s): No dilutions were required.

Method and Sample QC Data:

Laboratory Quality Control Sample: All quality control results were within acceptable limits.

Blank: All Blank samples met QC criteria.

MS/MSD: Matrix spike and matrix spike duplicate samples were prepared using sample UC 04459 (AVVS005). The MS/MSD recoveries were within acceptable limits.

Instrument QC: All initial and continuing calibration samples met method criteria.

Flagging Codes: No data flagging codes were used.

NC/CAR - CPR: No NC/CARs or CPRs were required for this lot.

Miscellaneous Comments: None.

Sample Calculation:

The slope was taken from the calibration curve for NQ and the area for NQ was taken from sample UC 04459MS (AVVS006)

$$6228 \text{ } \mu\text{g/L of NQ} = \frac{1000 \text{ mL X } [133180 \text{ (Area)} - 132.2 \text{ (Intercept)}]}{1.0 \text{ L X } 21362 \text{ Slope (area x ml/ug)}}$$

 12/18/95
Kristine M. Kolenz Date

**TIER II DATA QUALITY ASSESSMENT
NITROGLYCERIN AND PETN ANALYSES: SOIL
METHOD: LW27
LOT: AVRQ**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed on were analyzed and all forms signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all forms signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, the transfer files, laboratory notebooks, and the raw data.

III. FIELD QUALITY CONTROL

The data for one field duplicate set (ARS-95-10/ARS-95-11) were submitted for review. Nitroglycerin or PETN were not detected in the field duplicate sample at concentrations greater than or equal to the certified reporting limit (CRL). Field duplicate relative percent difference (RPD) values were therefore not calculable.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

Holding times were not listed in the method. All samples in this lot were extracted within 4 days of collection and were analyzed within 2 days of extraction. Sample results were not qualified on this basis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

The appropriate number of calibration standards were used to generate a least squares model linear standard curve. The correlation coefficient was greater than 0.995, indicated acceptable linearity. The correlation coefficient, the slope and y intercept were calculated by the reviewer. The results of the regression statistics for the curve did not exactly agree with the laboratory values. However, as both the recalculated and reported values were acceptable, no qualification of sample results was performed by the reviewer.

Sample ARS-95-10 was re-analyzed on December 7, 1996. Initial calibration results for this analytical run were not submitted with the data package. No data were qualified on this basis.

3.0 Daily Calibration: ACCEPTABLE/All criteria met.

The results of the daily calibration standard were calculated by the reviewer and agreed with the initial calibration high standard within the 90% to 110% criteria. The daily calibrations were performed at the proper frequency.

4.0 Blank Analysis: ACCEPTABLE/All criteria met.

One method blank was associated with the samples in this lot. Nitroglycerin and PETN were not detected in the method blank at concentrations greater than or equal to the CRL.

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/With the following discussion.

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analyses on Sample ARS-95-11. The percent recovery (%R) values for nitroglycerin of the MS/MSD samples were 102.0% and 108.0%, respectively. The %R values for PETN of the MS/MSD samples were 99.0% and 98.0%, respectively. The MS %R value of nitroglycerin was slightly greater than the high spike upper control limit of 103.9% at 108%. Since the MSD %R and RPD value for nitroglycerin were within the high spike control limits, no action was taken. The %R and RPD values for PETN were within the high spike control limits.

6.0 High Spike and Low Spike Recovery: ACCEPTABLE/All criteria met.

The %R values of the low and two high spike sample results were within the specified control limits.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data were reviewed for nitroglycerin and PETN; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits: ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRLs on the transfer file met those listed in the method.

9.0 Chromatogram Quality: ACCEPTABLE/All criteria met.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified analytical method.

Accuracy was acceptable, as demonstrated by the %R values of the MS/MSD and standard spike recovery values. Precision was acceptable as demonstrated by acceptable MS/MSD RPD values.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
NITROGLYCERIN AND PETN: WATER
METHOD: UW27
LOT: AVRT**

Analytical data for one equipment rinsate blank was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- * Technical Holding Times
Initial Calibration
- * Initial and Continuing Calibration Verification
Blanks (Method, ICB, CCB)
- * Standard Spikes
- * Duplicate Sample
- * Spiked Sample Analyses (MS/MSD)
Certified Reporting Limits (CRL)

Technical Holding Times

Holding times were not listed in the method. Sample 3ER-70 was extracted 4 days after sample collection and analyzed 23 days after sample extraction. Sample results were not qualified on this basis.

Continuing Calibration Verification

The percent recovery (%R) values for nitroglycerin and PETN in two continuing calibration verification samples (CCV) ranged from 40.4% to 41.6% and were less than the lower control limit of 90%. The %R value for nitroglycerin in the daily calibration standard was 40.3% which is lower than the control limit of 90%. All results were qualified as estimated (UJ-5B).

Standard Spikes

The low spike %R value for PETN of 112% was greater than the upper control limit of 102%. As the sample result was not detected no qualification of data was performed.

Duplicate Sample

Duplicate sample analysis was not performed with this sample lot. No qualification of data has been performed as duplicate analysis is not required.

Spiked Sample Analyses

Matrix spike/matrix spike duplicate (MS/MSD) sample analysis was not performed with this sample lot. Because the sample is a field equipment rinsate blank, no qualification of data has been performed.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of high spike samples. Accuracy was acceptable, as demonstrated by the standard spike samples %R values being within control limits, except for the low spike of PETN.

Qualification of sample results was required because of low CCV and daily calibration %R values.

All data, as qualified, are acceptable for use.

**DATA QUALIFIER SUMMARY TABLE
FOR LOT AVRT**

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
3ER-70	005 UC04459	WATER	UW27	NG	LT 1.49		UJ-5B	UGL
3ER-70	005 UC04459	WATER	UW27	PETN	LT 2.00		UJ-5B	UGL

**TIER II DATA QUALITY ASSESSMENT
ETHYL CENTRALITE: SOIL
METHOD: ECNS
LOT: AVRVP**

I. DELIVERABLES AND DOCUMENTATION

All necessary documentation for this lot were provided by the laboratory to meet USATHAMA PAM 11-41 requirements for this data package, with the exception of percent moisture logbook pages. The sample percent moisture values on the transfer files could not be confirmed.

Good documentation practices were observed by the laboratory in the following areas: changes or corrections were struck out by a single line and the entry was initialed and dated by the analyst; correction fluid or tape was not found on any of the raw data; proper units for numerical values were used; the laboratory notebook pages and chromatograms were signed and dated by the analyst.

II. CHAIN-OF-CUSTODY/SAMPLE IDENTIFICATION

The field Chain-of-Custody forms (COCs) were present and complete for this lot. All samples listed were analyzed and all forms signed and dated. The field COCs indicated no problems with sample receipt conditions.

Laboratory COCs were present and complete for all samples and all forms signed and dated. The laboratory lot and sample identification suffixes were clearly indicated on all laboratory COCs. A minimum of 10% of the field ID and laboratory ID were tracked from the COCs, the transfer files, laboratory notebooks, and the raw data.

III. FIELD QUALITY CONTROL

The data for one field duplicate set (ARS-95-10/ARS-95-11) were submitted for review. Ethyl centralite was not detected in the field duplicate samples at concentrations greater than or equal to the certified reporting limit (CRL). Field duplicate relative percent difference (RPD) values were therefore not calculable.

IV. TECHNICAL ASSESSMENT

1.0 Holding Times: ACCEPTABLE/All criteria met.

All samples in this lot were extracted within 8 days of collection and were analyzed within 5 days of extraction. These holding times were within the method specified holding times of 14 days for sample extraction and 40 for sample analysis.

2.0 Instrument Calibration: ACCEPTABLE/With the following discussion.

The appropriate number of calibration standards were used to generate a least-squares-model linear standard curve. The correlation coefficient was greater than 0.995, indicating acceptable linearity. The correlation coefficient, the slope and y intercept were calculated by the reviewer. The results of the regression statistics for the curve did not exactly agree with the laboratory values. However, as both the recalculated results and reported results are acceptable, no qualification of sample results was performed by the reviewer.

3.0 Daily Calibration: ACCEPTABLE/ With the following discussion.

The results of the daily calibration standard were calculated by the reviewer and agreed with the initial calibration high standard within the method-specified 75% to 125% recovery (%R) criteria. The daily calibrations (ICV and CHK) were performed at the proper frequency, except for the CHK calibration check standard. Twenty samples were analyzed between CHK1 and CHK2, whereas the method requires the analysis of a CHK standard every 10 samples. However, as all check standards were acceptable, no qualification of data was performed.

4.0 Blank Analysis: ACCEPTABLE/ All criteria met.

One method blank was associated with the samples in this lot. Ethyl centralite was not detected in the method blank at concentrations greater than or equal to the CRL.

5.0 Matrix Spike/Matrix Spike Duplicate Analyses: ACCEPTABLE/With the following discussion.

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analyses on Sample ARS-95-11. The %R values for ethyl centralite of the MS/MSD samples were 80.0% and 79.2%, respectively. As %R control limits are not established in the method, the ICV and CHK control limits of 75% to 125% were used as advisory control limits. The MS/MSD RPD value for ethyl centralite was within the advisory control limit of less than or equal to 50% at 1.0%.

6.0 Laboratory Control Sample Analysis: ACCEPTABLE/With the following discussion.

The %R value of the laboratory control sample (LCS) results was within the ICV and CHK control limits of 75% to 125% at 82.8%.

7.0 Compound Identification: ACCEPTABLE/All criteria met.

The chromatograms and raw data were reviewed for ethyl centralite; false negatives or false positives were not found. There were no discrepancies between the raw data and the transfer files.

8.0 Compound Quantitation and Certified Reporting Limits: ACCEPTABLE/All criteria met.

An evaluation of compound quantitation was performed by recalculating the sample results from the raw data. Discrepancies were not found. The CRL on the transfer file met those listed in the method.

9.0 Chromatogram Quality: ACCEPTABLE/ With the following discussion.

A review of chromatogram quality revealed no problems. The baselines were stable, no electropositive displacement was found, and all early eluting peaks were resolved to the baseline. Sample retention times (RT) did not fall within the laboratory established RT windows of 10.23 to 10.29. No qualification of associated sample data was performed as the peak width of these samples were larger than the established RT windows.

V. OVERALL ASSESSMENT/QC SUMMARY

On the basis of this evaluation, the laboratory followed the specified analytical method.

Accuracy was acceptable, as demonstrated by acceptable %R values of the MS/MSD and LCS recovery values. Precision was acceptable as demonstrated by an acceptable MS/MSD RPD value.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
ETHYL CENTRALITE: WATER
METHOD: ECNW
LOT: AVRS**

Analytical data for one equipment rinsate blank was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- Blanks (Method, ICB, CCB)
- * Standard Spikes
- * Duplicate Sample
- * Spiked Sample Analyses (MS/MSD)
- Certified Reporting Limits (CRL)

Standard Spikes

A laboratory control sample (LCS) was analyzed with this sample batch. LCS percent recovery (%R) criteria were not specified in the method. For the purpose of data review, 75% to 125% control limits were used. The LCS %R value of 87.6% was within these advisory criteria, so qualification of data has not been performed.

Duplicate Sample

Duplicate sample analysis was not performed with this sample lot. No qualification of data has been performed as duplicate analysis is not required.

Spiked Sample Analyses

The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) sample analysis was performed on Sample 3ER-70. MS/MSD %R control limits were not specified in the method. For the purpose of data review, 75% to 125% control limits were used. The MS/MSD %R values of 88.4% and 96.4%, respectively, were within these control limits. The relative percent difference (RPD) value of 8.7% was less than the advisory RPD control limit of 20%.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the MS/MSD analyses being within the advisory control limit. Accuracy was acceptable, as demonstrated by the MS/MSD and standard spike %R value being within advisory control limits.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
PERCHLORATE: SOIL
METHOD: PRCL
LOT: AWBI**

Analytical data for 16 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The samples were collected on November 30, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- Blanks (Method, ICB, CCB)
- Standard Spikes
- * Duplicate Sample
- * Spiked Sample Analyses (MS/MSD)
- Certified Reporting Limits (CRL)

Duplicate Sample

Duplicate sample analysis was not performed with this sample lot. No qualification of data has been performed as duplicate analysis is not required and matrix spike/matrix spike duplicate (MS/MSD) analysis was performed.

Spiked Sample Analyses

The laboratory used Sample ARS-95-11 for the MS/MSD analysis. Percent recovery (%R) values of the MS/MSD samples were 68.3% and 65.9%, respectively. These values are less than the laboratory-established %R control limits of 75% to 125%. All sample results have been qualified as estimated (UJ-8) on this basis. The relative percent difference (RPD) value of 4% was less than the laboratory specified RPD control limit of 20%.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the control-limit compliant RPD values of the MS/MSD. Accuracy was acceptable, as demonstrated by the standard spike sample %R value.

Qualification of sample data was required because of MS/MSD %R values less than the lower control limit.

All data, as qualified, are acceptable for use.

DATA QUALIFIER SUMMARY TABLE FOR LOT AWBI

8909-10

Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
ARS-95-01	003 UC04397	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARB-95-01B	004 UC04401	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-02	005 UC04405	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARB-95-02B	006 UC04409	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-03	007 UC04412	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARB-95-03B	008 UC04416	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-04	009 UC04420	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARB-95-04B	010 UC04424	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-05	011 UC04428	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARB-95-05B	012 UC04432	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-06	013 UC04436	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-07	014 UC04440	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-08	015 UC04444	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-09	016 UC04448	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-10	017 UC04452	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
ARS-95-11	018 UC04456	SOIL	PRCL	CLO4	LT 5.00	D	UJ-8	UGG

**TIER I DATA QUALITY ASSESSMENT
PERCHLORATE: WATER
METHOD: PRCL
LOT: AWBH**

Analytical data for one equipment rinsate blank were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- Blanks (Method, ICB, CCB)
- Standard Spikes
- * Duplicate Sample
- * Spiked Sample Analyses (MS/MSD)
- Certified Reporting Limits (CRL)

Duplicate Sample

Duplicate sample analysis was not performed with this sample lot. No qualification of data has been performed as the sample associated with this lot is a field equipment rinsate blank.

Spiked Sample Analyses

Matrix spike/matrix spike duplicate (MS/MSD) sample analysis was not performed with this sample lot. No qualification of data has been performed as the sample associated with this lot is a field equipment rinsate blank.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was not evaluated as an MS/MSD or a standard spike and a duplicate standard spike analysis was not performed. Accuracy was acceptable, as demonstrated by the standard spike sample percent recovery value being within control limits.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
CYANIDE ANALYSES: SOIL
METHOD: KY15
LOT: AVTB**

Analytical data for 16 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The samples were collected on November 30, 1995 and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- Matrix Spike Sample Analyses
- Low Spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Duplicate Sample Analyses

No laboratory duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the high spike analyses and matrix spike/matrix spike duplicate (MS/MSD) analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the low spike and high spike percent recovery (%R) values and MS/MSD %R values being within control limits.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
CYANIDE ANALYSES: WATER
METHOD: TY23
LOT: AVSJ**

Analytical data for one equipment blank were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1991). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Instrument Calibration
- Blank Analyses
- * Matrix Spike Sample Analyses
- * Low Spike and High Spike Analyses
- * Duplicate Sample Analyses (Laboratory and Field)
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Matrix Spike Sample Analyses

No matrix spike/matrix spike duplicate (MS/MSD) analyses were performed for this lot. No action was taken on this basis.

Low Spike and High Spike Analyses

One low spike and two high spike analyses were performed with this sample lot. The low/high spike percent recovery (%R) values were evaluated based on the control chart upper and lower limits. The low spike %R value of 103% was greater than the upper control limit of 98.4%. As this low spike %R value was within the *National Functional Guidelines* control limits, no qualifiers were assigned. The high spike %R values of 97.3% and 98.0% were within the control limits.

Duplicate Sample Analyses

No laboratory and field duplicate analyses were performed for this lot. No action was taken on this basis.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the high spike analyses being within QC criteria. Accuracy was acceptable, as demonstrated by the low spike and high spike %R values being within control limits.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
NITRATES AND NITRITES: SOIL
METHOD: KT09
LOT: AVVA**

Analytical data for 16 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The samples were collected on November 30, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below. All criteria were met for all quality control requirements.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- Blanks (Method, ICB, CCB)
- Duplicate Sample
- Spiked Sample Analyses (MS/MSD))
- Certified Reporting Limits (CRL)

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference values of the field duplicate and matrix spike/matrix spike duplicate (MS/MSD) analyses. Accuracy was acceptable, as demonstrated by the laboratory control sample and MS/MSD percent recovery values being within control limits.

All data, as reported, are acceptable for use.

**TIER I DATA QUALITY ASSESSMENT
NITRATE PLUS NITRITE: WATER
METHOD: LL8
LOT: AVSC**

Analytical data for one water sample was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- * Blanks (Method, ICB, CCB, Equipment)
- * Laboratory Control Sample Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

The percent recovery (%R) values for two high spike analyses (93.4% and 94.8%) were slightly less than control limits of 95.3% to 99.5%. As the %R value was within the laboratory control limits for a third laboratory control sample (LCS), and as these two high spike %R values were reasonable, no qualifiers were assigned on the basis of these LCS results.

Blanks (Method, ICB, CCB, Equipment)

Equipment blank 3ER-70 contained 97.6 µg/L of nitrites/nitrates. An action level of five times the equipment blank contamination was used to evaluate sample results. Associated samples (soil samples from Lot AVVA) with positive results reported for nitrites/nitrates contained concentrations greater than the action level and consequently were not qualified for equipment blank contamination.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the LCS analyses. Accuracy was acceptable, as demonstrated by one of the LCS %R values being within control limits.

All data, as reported, are acceptable for use.

TIER I DATA QUALITY ASSESSMENT
SULFATE: SOIL
METHOD: KT09
LOT: AWAX

Analytical data for 16 soil samples were reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The samples were collected on November 30, 1995, and were analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- Blanks (Method, ICB, CCB)
- * Laboratory Control Sample Analyses
 - Duplicate Sample
 - Spiked Sample Analyses (MS/MSD))
 - Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

The percent recovery (%R) value for the low spike analysis (84.1%) was less than control limits of 88.2% to 110.6%. The %R value for one of the high spike analyses (81.6%) was also less than control limits of 99.1% to 103.9%. The relative percent difference (RPD) value of 20.1% was also greater than the control limits of 4.2%. As the %R values were acceptable for one laboratory control sample (LCS) and the matrix spike/matrix spike duplicate (MS/MSD) analyses, no qualifiers were assigned on the basis of LCS results.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the RPD values of the MS/MSD analyses and field duplicate results. Accuracy was acceptable, as demonstrated by the MS/MSD and one of the LCS %R values being within control limits.

All data, as reported, are acceptable for use.

TIER I DATA QUALITY ASSESSMENT
SULFATE: WATER
METHOD: TT09
LOT: AWCR

Analytical data for one equipment blank sample was reviewed using quality control (QC) criteria documented in the analytical method, USATHAMA PAM 11-41, and *National Functional Guidelines* (U.S. EPA, 1994). The sample was collected on November 30, 1995, and was analyzed by DataChem.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times
- Initial Calibration
- Initial and Continuing Calibration Verification
- Blanks (Method, ICB, CCB, Equipment)
- * Laboratory Control Sample Analyses
- Certified Reporting Limits (CRL)

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria.

Laboratory Control Sample Analyses

The percent recovery (%R) value for one high spike analysis (104.8%) was slightly greater than the control limits of 98.4% to 103.0%. As the %R values were acceptable for two other laboratory control sample (LCS) analyses, no qualifiers were assigned on the basis of LCS results.

Overall Assessment

On the basis of this evaluation, the laboratory followed the specified method.

Precision was acceptable, as demonstrated by the relative percent difference (RPD) values of the LCS analyses. Accuracy was acceptable, as demonstrated by most of the LCS %R values being within control limits.

All data, as reported, are acceptable for use.



EcoChem, Inc.

Environmental Science and Chemistry

APPENDIX A

DATA QUALIFIER SUMMARY TABLE

**DATA QUALIFIER SUMMARY TABLE
FOR BACKGROUND AND FIELD BLANK SAMPLES**

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVZD	3ER-67	005 UC04285	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3ER-68	006 UC04286	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVZD	3ER-69	007 UC04349	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AVRT	3ER-70	005 UC04459	WATER	UW27	NG	LT 1.49		UJ-5B	UGL
AVRT	3ER-70	005 UC04459	WATER	UW27	PETN	LT 2.00		UJ-5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	46DN2C	ND 50.0	R	UJ-5A	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	ANIL	ND 2.00	R	R-5A	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	BENZID	ND 2.00	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	KEP	ND 20.0	R	UJ-5A	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB016	ND 9.10	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB221	ND 9.10	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB232	ND 9.10	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB242	ND 9.10	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB248	ND 9.10	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB254	ND 9.10	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCB260	ND 13.0	R	R-5A, 5B	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	PCP	LT 9.10		UJ-5A	UGL
AVSI	3ER-70	002 UC04463	WATER	UM25	TXPHEN	ND 17.0	R	R-5A, 5B	UGL
AVZD	3FB-P	008 UC04353	WATER	SD25	SE	LT 2.53		UJ-10	UGL
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	678HPD	0.00000655	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	678HPF	0.0000221	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	78HXDF	0.00000762	B	U-7	UGG
AWKZ	BKS-95-06	039 UC04345	SOIL	8290	OCDD	0.0000301	B	U-7	UGG
AWKZ	BKS-95-07	040 UC04346	SOIL	8290	678HPF	0.0000221	B	U-7	UGG
AWKZ	BKS-95-07	040 UC04346	SOIL	8290	78HXDF	0.00000457	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	678HPD	0.00000352	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	678HPF	0.00000511	B	U-7	UGG
AWKZ	BKS-95-08	041 UC04347	SOIL	8290	OCDD	0.0000266	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	678HPD	0.00000320	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	678HPF	0.00000333	B	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	78HXDF	0.00000166	JPB	U-7	UGG
AWKZ	BKS-95-09	042 UC04348	SOIL	8290	OCDD	0.0000186	B	U-7	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 40

8909-10

Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	UNK562	10.0	SB	R-7	UGG
AVSY	ARB-95-01B	004 UC04402	SOIL	LM25	UNK642	0.700	SB	R-7	UGG
AVVU	ARB-95-01B	006 UC04399	SOIL	LF05	NC	87.3		R-7,8	UGG
AWBI	ARB-95-01B	004 UC04401	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
AVSY	ARB-95-02B	020 UC04465	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
AVVU	ARB-95-02B	008 UC04407	SOIL	LF05	NC	88.4		R-7,8	UGG
AWBI	ARB-95-02B	006 UC04409	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	UNK563	10.0	SB	R-7	UGG
AVSY	ARB-95-03B	007 UC04417	SOIL	LM25	UNK642	0.300	SB	R-7	UGG
AVVU	ARB-95-03B	010 UC04414	SOIL	LF05	NC	173		R-7,8	UGG
AWBI	ARB-95-03B	008 UC04416	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	UNK562	5.00	SB	R-7	UGG
AVSY	ARB-95-04B	009 UC04425	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
AVVU	ARB-95-04B	012 UC04422	SOIL	LF05	NC	149		R-7,8	UGG
AWBI	ARB-95-04B	010 UC04424	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	UNK562	10.0	SB	R-7	UGG
AVSY	ARB-95-05B	011 UC04433	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
AVVU	ARB-95-05B	014 UC04430	SOIL	LF05	NC	144		R-7,8	UGG
AWBI	ARB-95-05B	012 UC04432	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVRR	ARS-95-01	005 UC04396	SOIL	LW30	NQ	0.0807		J-5A	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
AVSY	ARS-95-01	003 UC04398	SOIL	LM25	UNK642	0.600	SB	R-7	UGG
AVVU	ARS-95-01	005 UC04395	SOIL	LF05	NC	152		R-7,8	UGG
AWBI	ARS-95-01	003 UC04397	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	UNK562	6.00	SB	R-7	UGG
AVSY	ARS-95-02	005 UC04406	SOIL	LM25	UNK642	0.600	SB	R-7	UGG
AVVU	ARS-95-02	007 UC04403	SOIL	LF05	NC	144		R-7,8	UGG
AWBI	ARS-95-02	005 UC04405	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
AVSY	ARS-95-03	006 UC04413	SOIL	LM25	UNK642	0.700	SB	R-7	UGG
AVVU	ARS-95-03	009 UC04410	SOIL	LF05	NC	172		R-7,8	UGG
AWBI	ARS-95-03	007 UC04412	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	UNK562	6.00	SB	R-7	UGG
AVSY	ARS-95-04	008 UC04421	SOIL	LM25	UNK642	0.800	SB	R-7	UGG
AVVU	ARS-95-04	011 UC04418	SOIL	LF05	NC	63.9		R-7,8	UGG
AWBI	ARS-95-04	009 UC04420	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVRR	ARS-95-05	013 UC04427	SOIL	LW30	NQ	0.209		J-5A	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	UNK563	20.0	SB	R-7	UGG
AVSY	ARS-95-05	010 UC04429	SOIL	LM25	UNK642	0.400	SB	R-7	UGG
AVVU	ARS-95-05	013 UC04426	SOIL	LF05	NC	180		R-7,8	UGG
AWBI	ARS-95-05	011 UC04428	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 40

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	UNK562	5.00	SB	R-7	UGG
AVSY	ARS-95-06	012 UC04437	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
AVVU	ARS-95-06	015 UC04434	SOIL	LF05	NC	162		R-7,8	UGG
AWBI	ARS-95-06	013 UC04436	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	UNK562	9.00	SB	R-7	UGG
AVSY	ARS-95-07	013 UC04441	SOIL	LM25	UNK642	0.800	SB	R-7	UGG
AVVU	ARS-95-07	016 UC04438	SOIL	LF05	NC	140		R-7,8	UGG
AWBI	ARS-95-07	014 UC04440	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	UNK562	6.00	SB	R-7	UGG
AVSY	ARS-95-08	014 UC04445	SOIL	LM25	UNK642	0.400	SB	R-7	UGG

DATA QUALIFIER SUMMARY TABLE FOR SWMU 40

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AVVU	ARS-95-08	017 UC04442	SOIL	LF05	NC	121		R-7,8	UGG
AWBI	ARS-95-08	015 UC04444	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVRR	ARS-95-09	018 UC04447	SOIL	LW30	NQ	0.350		J-5A	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	UNK562	7.00	SB	R-7	UGG
AVSY	ARS-95-09	015 UC04449	SOIL	LM25	UNK642	0.500	SB	R-7	UGG
AVVU	ARS-95-09	018 UC04446	SOIL	LF05	NC	97.3		R-7,8	UGG
AWBI	ARS-95-09	016 UC04448	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVRR	ARS-95-10	019 UC04451	SOIL	LW30	NQ	0.148		J-5A	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	46DN2C	LT 0.800		UJ-5A	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	ANIL	ND 0.130	R	R-5A	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	BENZID	ND 0.130	R	R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	KEP	ND 1.30	R	UJ-5A	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB016	LT 0.320		R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB221	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB232	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB242	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB248	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB254	ND 0.320	R	R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB260	LT 0.790		R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCB262	LT 6.30		R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	PCP	LT 0.760		UJ-5A	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	TXPHEN	LT 12.0		R-5A, 5B	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	UNK562	5.00	SB	R-7	UGG
AVSY	ARS-95-10	016 UC04453	SOIL	LM25	UNK642	0.600	SB	R-7	UGG
AVVU	ARS-95-10	019 UC04450	SOIL	LF05	NC	148		R-7,8	UGG

**DATA QUALIFIER SUMMARY TABLE
FOR SWMU 40**

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Lot	Site ID	Lab ID	Matrix	Method	Analyte	Conc.	Lab Qualifier	DV Qualifier	Units
AWBI	ARS-95-10	017 UC04452	SOIL	PRCL	CLO4	LT 5.00		UJ-8	UGG
AVRR	ARS-95-11	020 UC04455	SOIL	LW30	NQ	0.235	D	J-5A	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	46DN2C	LT 0.800	D	UJ-5A	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	ANIL	ND 0.130	RD	R-5A	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	BENZID	ND 0.130	RD	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	KEP	ND 1.30	RD	UJ-5A	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB016	LT 0.320	D	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB221	ND 0.320	RD	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB232	ND 0.320	RD	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB242	ND 0.320	RD	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB248	ND 0.320	RD	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB254	ND 0.320	RD	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB260	LT 0.790	D	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCB262	LT 6.30	D	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	PCP	LT 0.760	D	UJ-5A	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	TXPHEN	LT 12.0	D	R-5A, 5B	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	UNK562	10.0	SBD	R-7	UGG
AVSY	ARS-95-11	017 UC04457	SOIL	LM25	UNK642	0.900	SBD	R-7	UGG
AVVU	ARS-95-11	020 UC04454	SOIL	LF05	NC	111	D	R-7,8	UGG
AWBI	ARS-95-11	018 UC04456	SOIL	PRCL	CLO4	LT 5.00	D	UJ-8	UGG



EcoChem, Inc.

Environmental Science and Chemistry

APPENDIX B

DATA QUALIFIER REASON CODES

DATA QUALIFIER REASON CODES

1	Holding Times
2	Sample Preservation
3	Sample Custody
4	Missing Deliverables
5A	Calibration (initial)
5B	Calibration (continuing)
6	Field Blanks
7	Laboratory Blanks
8	Matrix Spike
9	Precision (Duplicate, or Matrix Spike Duplicate)
10	Laboratory Control Sample
11	Detection Limit
12	Standards
13	Surrogates
14	Other
15	Furnace QC
16	ICP Serial Dilution
17	Chemical Recoveries
18	Trip Blanks
19	Internal Standards
20	Linear Range Exceeded
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**Summary of
Qualified Data Based on
EPA Functional Guidelines**

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Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil

Group	Analytes	OBS-92-101 0 ft	OBS-92-201 0 ft	OBS-92-301 0 ft	OBS-92-401 0 ft	OBS-92-G01 0 ft	OBS-92-G02 0 ft
ANIONS EXPLOSIVES	NITRATE						
	2,4-DINITROTOLUENE	6	3.36	3.36	2.67	11.4	3.52
	2,4,6-TRINITROTOLUENE	0.744	0.744	0.744	0.744	0.744	1.73
	2,6-DINITROTOLUENE	0.931	0.931	0.931	0.931	0.931	0.931
METALS	RDX	0.83	0.83	0.83	0.83	0.83	0.83
	ALUMINUM	0.445	0.445	0.445	0.445	0.445	8.36
	ANTIMONY	NA	NA	NA	NA	NA	NA
	ARSENIC	34	34	34	34	34	34
	BARIUM	240	24	48	240	240	24
	BERYLLIUM	130	380	120	160	180	160
	BORON	0.078	0.078	0.078	0.078	0.078	0.078
	CADMIUM	NA	NA	NA	NA	NA	NA
	CALCIUM	0.424	0.424	0.424	0.424	0.424	0.424
	CHROMIUM	12.9	NA	NA	NA	NA	NA
	COBALT	NA	28.1	16.7	12.3	17.1	10.5
	COPPER	33	NA	NA	NA	NA	NA
	IRON	15000	200	13.9	27	53	30
	LEAD	46	39000	15000	11000	20000	12000
	MAGNESIUM	NA	12000	16	22	70	35
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	0.25	0.0259	NA	NA	NA	NA
	NICKEL	2.46	8.82	0.0259	0.0279	0.0486	0.0259
	POTASSIUM	NA	NA	2.46	2.46	2.46	2.46
	SILVER	0.0853	1.2	NA	NA	NA	NA
	SODIUM	NA	NA	0.0612	0.0773	0.187	0.104
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	130	880	43	190	200	280
	2,4-DINITROTOLUENE	0.39	0.39	0.39	0.75	0.39	10
SEMIVOLATILES	2,6-DINITROTOLUENE	0.53	0.53	0.53	0.53	0.53	0.78
	BUTYLBENZYL PHTHALATE	0.33	0.33	0.283	0.09	0.18	0.33
	DI-N-BUTYL PHTHALATE	0.33	0.33	0.33	0.21	0.33	0.33
	N-NITROSO DIPHENYLAMINE	0.33	0.33	0.33	0.051	0.33	0.33

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-92-G03 0 ft	OBS-92-G04 0 ft	OBS-92-G05 0.5 ft	OBS-94-01A 0.5 ft	OBS-94-02A 0.5 ft	OBS-94-03A 0.5 ft
ANIONS EXPLOSIVES	NITRATE	3.17	4.5	2.76	NA	NA	NA
	2,4-DINITROTOLUENE	34	3.64	0.744	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	0.931	3.4	0.931	2	2	2
	2,6-DINITROTOLUENE	0.83	0.83	0.83	2	2	2
METALS	RDX	0.445	0.445	0.445	1.28	1.28	1.28
	ALUMINUM	NA	NA	NA	17300	12300	6730
	ANTIMONY	34	34	17	19.6	19.6	19.6
	ARSENIC	24	240	120	7.17	2.68	3.34
	BARIUM	240	230	160	344	88	44.1
	BERYLLIUM	0.078	0.078	0.078	0.726	0.549	0.427
	BORON	NA	NA	NA	NA	NA	NA
	CADMIUM	0.424	0.424	0.424	1.2	1.2	1.2
	CALCIUM	NA	NA	NA	11800	2220	4460
	CHROMIUM	11.8	13.6	12.4	39.3	14.8	9.41
	COBALT	NA	NA	NA	6	3.22	2.5
	COPPER	35	62	14.8	112	11.6	10.5
	IRON	10000	13000	16000	36500	11500	7190
	LEAD	35	43	20	1800	109	32.2
	MAGNESIUM	NA	NA	NA	6960	3200	1560
	MANGANESE	NA	NA	NA	488	208	21.2
SEMIVOLATILES	MERCURY	0.0259	0.0277	0.0259	0.05	0.05	0.05
	NICKEL	2.46	2.46	2.46	23.3	7.83	3.86
	POTASSIUM	NA	NA	NA	4820	3230	1720
	SILVER	0.112	0.128	0.0818	0.803	0.803	0.803
	SODIUM	NA	NA	NA	278	174	151
	VANADIUM	240	240	77	27.8	17.7	3.15
	ZINC	7	4.5	0.39	641	43	45.9
	2,4-DINITROTOLUENE	0.58	0.53	0.53	NA	NA	NA
	2,6-DINITROTOLUENE	0.29	0.19	0.31	NA	NA	NA
	BUTYLBENZYL PHTHALATE	0.33	0.33	0.33	NA	NA	NA
	DI-N-BUTYL PHTHALATE	0.33	0.33	0.33	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	0.33	0.33	0.33	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBP-94-04A 0.5 ft	OBP-94-06A 0.5 ft	OBP-94-07A 0.5 ft	OBP-94-08A 0.5 ft	OBP-94-09A 0.5 ft	OBP-94-09A 0.5 ft (dup)
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	U	2	2	2
	2,6-DINITROTOLUENE	2	2	U	2	2	2
METALS	RDX	1.28	1.28	U	1.28	1.28	1.28
	ALUMINUM	14600	11500	16700	18400	18700	12100
	ANTIMONY	19.6	19.6	U	19.6	19.6	19.6
	ARSENIC	3.93	3.6	6.51	3.53	3.97	5.08
	BARIUM	205	111	364	179	158	131
	BERYLLIUM	0.575	0.529	0.669	0.74	0.735	0.848
	BORON	NA	NA	NA	NA	NA	NA
	CADMIUM	1.2	1.2	1.59	1.2	1.2	1.2
	CALCIUM	4450	3650	30500	7070	12000	10400
	CHROMIUM	34.4	13.2	30.5	20.6	20	12.9
	COBALT	6.62	3.46	5.49	4.66	5.99	5.98
	COPPER	116	17	347	81.9	16.8	16.7
	IRON	21600	12600	26100	16400	16500	13100
	LEAD	394	20.8	982	55.9	9.36	7.44
	MAGNESIUM	4060	4340	5440	5860	6580	5590
	MANGANESE	290	320	338	390	368	345
	MERCURY	0.05	0.05	0.102	0.05	0.05	0.05
SEMIVOLATILES	NICKEL	10.1	8.57	15.2	8.94	9.78	8.98
	POTASSIUM	4180	3470	4990	5610	5750	3620
	SILVER	0.803	0.803	U	0.803	0.803	0.803
	SODIUM	268	119	277	236	237	222
	VANADIUM	21.9	3.56	26.6	26.4	27.3	17.7
	ZINC	137	50.1	952	177	85.1	75.2
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBP-94-10A		OBP-94-12A		ORS-94-01		ORS-94-02		ORS-94-03		ORS-94-04	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
ANIONS EXPLOSIVES	NITRATE	NA		NA		NA		NA		NA		NA	
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
METALS	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
	ALUMINUM	9560		12600		16500		16100		14200		15300	
	ANTIMONY	19.6	U	19.6	U	19.6	U	19.6	U	19.6	U	19.6	U
	ARSENIC	34		4.55		4.81		5		4.77		3.61	
	BARIUM	167		113		142		152		126		120	
	BERYLLIUM	0.427	U	0.647		0.767		0.725		0.674		0.643	
	BORON	NA		NA		NA		NA		NA		NA	
	CADMIUM	1.38		1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
	CALCIUM	4010		8210		4150		7330		5110		3720	
	CHROMIUM	26.1		14		17.4		16.5		15		17.5	
	COBALT	6.64		4.72		5.32		5.32		4.88		3.83	
	COPPER	38.7		11.1		17.5		18.6		13.6		14.4	
	IRON	26800		12900		15500		14600		13700		12500	
	LEAD	89.4		7.44	U	12.3		17.1		11		14.8	
	MAGNESIUM	3750		6000		7080		7840		6910		5770	
	MANGANESE	485		330		419		410		351		333	
SEMIVOLATILES	MERCURY	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
	NICKEL	15.2		9.71		11.9		11.4		10.6		9.04	
	POTASSIUM	3100		3650	U	4670		4620		3940		4330	
	SILVER	0.803	U	0.803		0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	332		239		318		328		247		318	
	VANADIUM	14.7		17.4		21.9		20.5		19		20.9	
	ZINC	355		41.1		55.8		53.9		46		43.1	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	BUTYLBENZYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	DI-N-BUTYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	N-NITROSO DIPHENYLAMINE	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-94-05		OBS-94-06		OBS-94-07		OBS-94-08		OBS-94-09		OBS-94-09	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft (dup)	
ANIONS EXPLOSIVES	NITRATE	NA	2.5	NA	2.5	NA	2.5	NA	2.5	NA	2.5	NA	NA
	2,4-DINITROTOLUENE	2	2	U	2	U	2	U	2	U	2	U	U
	2,4,6-TRINITROTOLUENE	2	2	U	2	U	2	U	2	U	2	U	U
	2,6-DINITROTOLUENE	2	2	U	2	U	2	U	2	U	2	U	U
METALS	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
	ALUMINUM	18100	U	11800	U	12600	U	11900	U	11300	U	8280	U
	ANTIMONY	19.6	U	19.6	U	19.6	U	19.6	U	19.6	U	19.6	U
	ARSENIC	5.13	U	5.41	U	5.14	U	4.17	U	3.5	U	4.01	U
	BARIUM	162	U	104	U	113	U	107	U	96.3	U	86.2	U
	BERYLLIUM	0.794	U	0.548	U	0.519	U	0.495	U	0.427	U	0.427	U
	BORON	NA	U	14	U	NA	U	NA	U	NA	U	NA	U
	CADMIUM	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
	CALCIUM	4450	U	32000	U	3060	U	3060	U	2660	U	2520	U
	CHROMIUM	17.4	U	13.9	U	12.3	U	12.5	U	14.1	U	9.15	U
	COBALT	5.27	U	3.08	U	4.17	U	4.49	U	4.05	U	2.9	U
	COPPER	18.1	U	15.5	U	15	U	20.2	U	24.1	U	18.2	U
	IRON	16100	U	11200	U	11700	U	11100	U	9390	U	8800	U
	LEAD	19.4	U	14.7	U	16.7	U	22.3	U	31.4	U	23.2	U
SEMIVOLATILES	MAGNESIUM	7820	U	9100	U	4510	U	4430	U	3590	U	3240	U
	MANGANESE	449	U	265	U	330	U	306	U	262	U	251	U
	MERCURY	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
	NICKEL	11.3	U	9.73	U	8.63	U	7.42	U	6.71	U	6.18	U
	POTASSIUM	5120	U	3600	U	3350	U	3290	U	3180	U	2370	U
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	376	U	247	U	264	U	250	U	256	U	178	U
	VANADIUM	23.1	U	16.5	U	16.6	U	15.5	U	15.4	U	2.21	U
	ZINC	55.6	U	38.3	U	41.2	U	47.5	U	51.5	U	43.2	U
	2,4-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	2,6-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	BUTYLBENZYL PHTHALATE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	DI-N-BUTYL PHTHALATE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	N-NITROSO DIPHENYLAMINE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-94-10 0.5 ft	OBS-94-11 0.5 ft	OBS-94-12 0.5 ft	OBS-94-13 0.5 ft	OBS-94-14 0.5 ft	OBS-94-15 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	2,4-DINITROTOLUENE	2.5	U	U	2.5	U	U
	2,4,6-TRINITROTOLUENE	2	U	U	2	U	U
	2,6-DINITROTOLUENE	2	U	U	2	U	U
	RDX	1.28	U	U	1.28	U	U
METALS	ALUMINUM	9380	14800	14800	11.2	10200	7970
	ANTIMONY	19.6	U	U	19.6	U	U
	ARSENIC	3.55	4.77	5.28	17.6	4.66	10.2
	BARIUM	87.1	137	134	3.29	83.2	87.8
	BERYLLIUM	0.427	U	0.606	0.427	U	U
	BORON	NA	NA	NA	NA	NA	NA
	CADMIUM	1.2	U	1.2	1.2	U	U
	CALCIUM	2360	3060	3600	25.3	2250	5350
	CHROMIUM	11.1	13.8	14.8	1.04	9.37	9.42
	COBALT	3.86	4.97	4.4	2.5	3.83	2.73
	COPPER	9.61	16.8	20.6	2.84	20.3	16.4
	IRON	9850	14200	13600	6.66	11000	8270
	LEAD	8.36	12.2	23.2	7.44	21.3	270
	MAGNESIUM	3370	5290	5110	10.1	3510	3310
	MANGANESE	278	351	365	9.87	242	206
	MERCURY	0.05	U	U	0.304	0.05	U
	NICKEL	6.59	10.4	9.34	2.74	8.39	5.34
	POTASSIUM	2510	4010	3970	131	2670	2250
	SILVER	0.803	U	0.803	0.803	0.803	0.803
	SODIUM	161	251	347	38.7	110	156
	VANADIUM	13.5	18.6	20.5	1.41	13.5	2.21
	ZINC	29.1	221	59.7	10000	44.3	75.6
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-94-16 0.5 ft	OBS-94-17 0.5 ft	OBS-94-18 0.5 ft	OBS-94-19 0.5 ft	OBS-94-19 0.5 ft (dup)	OBS-94-20 0.5 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	2,6-DINITROTOLUENE	2	2	2	2	2	2
METALS	RDX	1.28	1.28	1.28	1.28	1.28	1.28
	ALUMINUM	12100	10500	25000	11600	10500	15900
	ANTIMONY	19.6	19.6	19.6	19.6	19.6	19.6
	ARSENIC	3.17	5.03	9.05	5.52	5.33	4.34
	BARIUM	93.8	86.2	247	166	152	119
	BERYLLIUM	0.427	0.427	1.09	0.513	0.479	0.642
	BORON	NA	21.7	NA	NA	NA	NA
	CADMIUM	1.2	1.2	1.8	5.92	6.98	1.2
	CALCIUM	2660	8090	16100	10300	8380	3230
	CHROMIUM	12.7	14.6	23.2	14.1	12.8	16.1
	COBALT	3.4	4.23	7.75	3.61	4.33	5.09
	COPPER	12.5	23	76.9	27.5	29.2	11.6
	IRON	10400	10000	22500	16200	13200	13600
	LEAD	11.7	106	68.2	35.5	35.6	7.44
SEMIVOLATILES	MAGNESIUM	3950	3130	9870	5750	5050	4970
	MANGANESE	270	214	555	345	337	331
	MERCURY	0.05	0.05	0.05	0.187	0.238	0.05
	NICKEL	6.42	9.14	17	9.94	9.66	10.3
	POTASSIUM	3530	2420	7260	3260	3030	4490
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	211	210	314	279	234	259
	VANADIUM	15.5	19.5	30.3	15.8	14.1	20.7
	ZINC	35.9	123	173	144	117	49
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-94-21		OBS-94-22		OBS-94-23		OBS-94-24		OBS-94-25		OBS-94-26	
		NA	0.5 ft	NA	0.5 ft	NA	0.5 ft	NA	0.5 ft	NA	0.5 ft	NA	0.5 ft
ANIONS EXPLOSIVES	NITRATE	NA		NA		NA		NA		NA		NA	
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
METALS	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
	ALUMINUM	9770		7710		7430		15600		15100		13200	
	ANTIMONY	19.6	U	19.6	U	19.6	U	19.6	U	19.6	U	19.6	U
	ARSENIC	4.11		4.36		3.9		6.78		6.9		6.23	
	BARIUM	121		106		796		160		141		137	
	BERYLLIUM	0.427	U	0.427	U	0.427	U	0.775		0.691		0.576	
	BORON	NA		NA		NA		NA		NA		NA	
	CADMIUM	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	3.52	
	CALCIUM	5590		11800		2600		3630		3340		21600	
	CHROMIUM	11.6		8.99		8.6		14.9		14.4		14	
	COBALT	3.39		2.77		2.5	U	5.8		5.62		4.16	
	COPPER	22.7		16.1		139		18.1		25.9		23.4	
	IRON	10000		8730		8290		16000		14900		12300	
	LEAD	18.6		13.4		44.1		14		26.5		36.4	
	MAGNESIUM	3600		3000		2920		6250		5090		5130	
	MANGANESE	271		212		228		422		413		310	
SEMIVOLATILES	MERCURY	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
	NICKEL	7.27		7.28		5.81		11.4		10.8		9.08	
	POTASSIUM	2600		2130		2450		4820		4240		3830	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	170		161		148		241		219		207	
	VANADIUM	12.9		11.6		2.21	U	17.8		17.6		18.1	
	ZINC	286		91.8		597		97.6		97.9		61.2	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	BUTYLBENZYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	DI-N-BUTYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	N-NITROSO DIPHENYLAMINE	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-94-27 0.5 ft	OBS-94-28 0.5 ft	OBS-94-29 0.5 ft	OBS-94-30 0.5 ft	OBS-94-31 0.5 ft	OBS-94-32 0.5 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	2,6-DINITROTOLUENE	2	2	2	2	2	2
METALS	RDX	1.28	1.28	1.28	1.28	1.28	1.28
	ALUMINUM	11200	17700	16100	12000	14100	18000
	ANTIMONY	19.6	19.6	19.6	19.6	19.6	19.6
	ARSENIC	5.54	6.49	3.11	4.39	5.86	3.87
	BARIUM	132	154	142	106	170	185
	BERYLLIUM	0.515	0.819	0.427	0.427	0.427	0.427
	BORON	NA	NA	NA	NA	NA	NA
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	6740	4120	4580	3170	5060	10300
	CHROMIUM	12.1	17.2	22.8	13.3	15.5	18.6
	COBALT	4.95	6.24	5.61	4.53	5.07	6.4
	COPPER	40.8	20.7	16.4	15.9	32.1	20.6
SEMIVOLATILES	IRON	13000	17100	16500	12700	14300	17700
	LEAD	71	16.5	33.8	17.6	33.2	23.2
	MAGNESIUM	4660	6870	4940	3470	4290	7860
	MANGANESE	334	448	471	312	394	505
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	9.56	12	9.41	7.28	8.4	10.7
	POTASSIUM	3470	5080	4300	2800	3500	5050
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	207	265	461	427	497	654
	VANADIUM	15.1	21.3	22.2	16.4	19.2	22.7
	ZINC	102	56.7	61.7	48.2	170	78.5
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-29 0.5 ft	OBS-95-30 0.5 ft	OBS-95-31 0.5 ft	OBS-95-32 0.5 ft	OBS-95-33 0.5 ft	OBS-95-34 0.5 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	U	2	2	2
	2,6-DINITROTOLUENE	2	2	U	2	2	2
METALS	RDX	1.28	1.28	U	1.28	1.28	1.28
	ALUMINUM	10200	13800	11600	7440	17800	13800
	ANTIMONY	1.3	1	U	1	1	1
	ARSENIC	6.86	4.58	4.98	4.54	8.75	7.22
	BARIUM	138	148	134	194	576	196
	BERYLLIUM	0.494	0.658	0.585	0.427	0.943	0.76
	BORON	NA	NA	NA	NA	NA	NA
	CADMIUM	1.2	1.2	U	1.2	1.39	1.2
	CALCIUM	2940	3080	3070	2660	8800	5800
	CHROMIUM	12.9	19.7	13.2	8.89	19.5	15.1
	COBALT	3.94	5.77	5.52	3.01	7.42	6
	COPPER	78.4	22.7	16.1	24.9	56.6	20.6
	IRON	11100	18100	14200	11200	20200	16500
	LEAD	78.5	27	15.5	25.1	60.4	22.7
	MAGNESIUM	3340	4590	4290	3080	9750	8620
	MANGANESE	340	402	379	309	673	648
SEMIVOLATILES	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	7.27	10.6	10.2	7.04	13.6	11
	POTASSIUM	2810	3550	3250	2220	6000	4990
	SILVER	0.803	0.803	U	0.803	0.803	0.803
	SODIUM	137	162	130	99.3	232	241
	VANADIUM	15.7	20.7	16.8	11.6	23.8	18.3
	ZINC	69.4	67.3	65.8	153	408	80.6
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-34 0.5 ft (dup)	OBS-95-39 0.5 ft	OBS-95-40 0.5 ft	OBS-95-41 0.5 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	NA	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	NA	2	2
	2,6-DINITROTOLUENE	2	NA	2	2
METALS	RDX	1.28	NA	1.28	1.28
	ALUMINUM	16400	9450	16700	14900
	ANTIMONY	1	3.26	1	1.25
	ARSENIC	6.27	5.57	6	5.9
	BARIUM	196	163	181	213
	BERYLLIUM	0.904	0.551	0.813	0.702
	BORON	NA	NA	NA	NA
	CADMIUM	1.2	4.24	1.2	1.2
	CALCIUM	5800	3510	5710	7970
	CHROMIUM	17.7	16.9	19.1	17.1
	COBALT	6.05	3.79	5.98	5.37
	COPPER	19.9	9900	24.8	33
	IRON	18100	13000	17200	15500
	LEAD	21.2	376	31.7	50.6
	MAGNESIUM	9060	3520	7970	7210
	MANGANESE	649	320	578	477
SEMIVOLATILES	MERCURY	0.05	0.05	0.05	0.05
	NICKEL	12	10.5	11.2	11
	POTASSIUM	5610	2950	5260	4670
	SILVER	0.803	0.803	0.803	0.803
	SODIUM	262	129	243	213
	VANADIUM	21.8	14.3	24.3	21
	ZINC	78	5700	75.8	76.3
	2,4-DINITROTOLUENE	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA
	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBP-95-01A 0.5 ft	OBP-95-02A 0.5 ft	OBP-95-03A 0.5 ft	OBP-95-04A 0.5 ft	OBS-95-01 0.5 ft	OBS-95-02 0.5 ft
DIOXINS	2,3,7,8-TCDD	6.9E-07	3.4E-07	3.2E-06	2.0E-06	1.1E-06	5.5E-07
	2,3,7,8-TCDF	2.2E-06	4.0E-07	3.9E-05	1.4E-06	1.2E-06	7.3E-07
	1,2,3,7,8-PeCDD	6.0E-07	4.2E-07	1.2E-05	2.7E-07	7.5E-07	3.3E-07
	1,2,3,7,8-PeCDF	1.2E-06	4.9E-07	6.2E-06	3.2E-07	7.9E-07	2.9E-07
	2,3,4,7,8-PeCDF	1.1E-06	5.3E-07	1.3E-05	3.3E-07	8.4E-07	4.4E-07
	1,2,3,4,7,8-HxCDD	9.9E-07	5.9E-07	9.8E-06	2.7E-06	3.1E-06	7.8E-07
	1,2,3,6,7,8-HxCDD	1.2E-06	4.8E-07	2.9E-05	2.2E-06	1.8E-06	4.6E-07
	1,2,3,7,8,9-HxCDD	2.3E-06	5.3E-07	4.0E-05	9.2E-07	2.4E-06	5.9E-07
	1,2,3,4,7,8-HxCDF	6.0E-06	3.4E-07	1.7E-05	1.0E-06	2.0E-06	2.3E-06
	1,2,3,6,7,8-HxCDF	1.6E-06	3.7E-07	6.8E-06	2.8E-07	4.9E-07	7.4E-07
	1,2,3,7,8,9-HxCDF	1.9E-06	5.7E-07	1.6E-06	1.4E-06	9.9E-07	6.7E-07
	2,3,4,6,7,8-HxCDF	7.9E-06	3.3E-07	1.1E-05	4.2E-07	7.0E-07	2.2E-06
	1,2,3,4,6,7,8-HpCDD	2.3E-05	2.2E-06	3.6E-04	2.0E-05	1.4E-06	3.1E-06
	1,2,3,4,6,7,8-HpCDF	3.2E-05	2.1E-06	5.4E-05	5.8E-06	3.3E-06	6.8E-06
	1,2,3,4,7,8,9-HpCDF	1.0E-05	3.1E-07	2.5E-06	1.1E-06	1.3E-06	1.2E-06
	OCTACHLORODIBENZODIOXIN	1.2E-04	1.1E-05	9.3E-04	1.3E-04	9.4E-06	2.0E-05
	OCTACHLORODIBENZOFURAN	1.0E-04	7.3E-06	4.3E-05	1.8E-05	5.0E-06	1.2E-05
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	2.6E-06	4.5E-08	3.6E-05	5.7E-07	1.2E-07	6.6E-07

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-03 0.5 ft	OBS-95-04 0.5 ft	OBS-95-05 0.5 ft	OBS-95-06 0.5 ft	OBS-95-07 0.5 ft	OBS-95-08 0.5 ft
DIOXINS	2,3,7,8-TCDD	2.7E-07 U	3.7E-07 U	2.3E-07 U	1.6E-07 U	8.0E-08 U	4.1E-07 UJ
	2,3,7,8-TCDF	4.5E-07 U	4.7E-07 U	1.7E-07 U	1.3E-07 U	2.0E-07 U	2.1E-07 UJ
	1,2,3,7,8-PeCDD	3.0E-07 U	3.5E-07 U	2.1E-07 U	1.6E-07 U	2.3E-07 U	1.2E-07 U
	1,2,3,7,8-PeCDF	2.5E-07 U	3.4E-07 U	1.7E-07 U	1.4E-07 U	2.1E-07 U	3.2E-07 U
	2,3,4,7,8-PeCDF	2.6E-07 U	3.6E-07 U	1.2E-07 U	1.5E-07 U	1.8E-07 U	3.4E-07 U
	1,2,3,4,7,8-HxCDD	8.2E-07 U	1.5E-06 U	3.3E-07 U	2.8E-07 U	3.2E-07 U	4.3E-07 U
	1,2,3,6,7,8-HxCDD	4.9E-07 U	8.7E-07 U	1.9E-07 U	1.9E-07 U	2.2E-07 U	2.9E-07 U
	1,2,3,7,8,9-HxCDD	6.2E-07 U	1.1E-06 U	2.2E-07 U	2.2E-07 U	2.6E-07 U	3.4E-07 U
	1,2,3,4,7,8-HxCDF	1.6E-06 U	8.4E-07 U	2.6E-07 U	1.9E-07 U	4.5E-07 U	1.0E-07 U
	1,2,3,6,7,8-HxCDF	6.4E-07 U	3.1E-07 U	1.9E-07 U	1.2E-07 U	2.7E-07 U	8.0E-08 U
	1,2,3,7,8,9-HxCDF	4.9E-07 U	2.9E-07 U	2.3E-07 U	2.1E-07 U	3.0E-07 U	1.5E-07 U
	2,3,4,6,7,8-HxCDF	1.5E-06 U	3.5E-07 U	2.6E-07 U	1.5E-07 U	3.6E-07 U	1.1E-07 U
	1,2,3,4,6,7,8-HpCDD	3.5E-06 U	3.1E-06 U	4.4E-06 U	9.0E-07 U	2.3E-06 U	1.0E-06 U
	1,2,3,4,6,7,8-HpCDF	5.9E-06 U	2.3E-06 U	2.5E-06 U	9.5E-07 U	2.9E-06 U	1.0E-06 U
	1,2,3,4,7,8,9-HpCDF	1.6E-06 U	4.0E-07 U	3.4E-07 U	4.6E-07 U	5.6E-07 U	2.0E-07 U
	OCTACHLORODIBENZODIOXIN	2.7E-05 U	2.8E-05 U	5.4E-05 U	4.5E-06 U	1.6E-05 U	3.4E-06 U
	OCTACHLORODIBENZOFURAN	1.0E-05	4.8E-06	6.7E-06	3.0E-06 U	6.8E-06	2.4E-06 U
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	2.3E-07	6.5E-08	2.6E-07	1.9E-09	1.4E-07	1.0E-08

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-09 0.5 ft	OBS-95-10 0.5 ft	OBS-95-10 0.5 ft (dup)	OBS-95-11 0.5 ft	OBS-95-12 0.5 ft	OBS-95-13 0.5 ft
DIOXINS	2,3,7,8-TCDD	1.2E-07	1.0E-07	1.6E-07	8.0E-08	1.1E-07	3.5E-07
	2,3,7,8-TCDF	1.8E-07	1.7E-07	2.5E-07	2.3E-07	2.8E-07	4.1E-07
	1,2,3,7,8-PeCDD	1.3E-07	2.0E-08	1.4E-07	1.6E-07	2.6E-07	1.4E-06
	1,2,3,7,8-PeCDF	1.5E-07	1.3E-07	1.3E-07	1.5E-07	2.2E-07	5.2E-07
	2,3,4,7,8-PeCDF	1.1E-07	1.4E-07	6.4E-07	9.0E-08	1.3E-07	1.3E-07
	1,2,3,4,7,8-HxCDD	2.6E-07	3.1E-07	4.9E-07	3.3E-07	1.7E-07	1.4E-06
	1,2,3,6,7,8-HxCDD	1.8E-07	2.1E-07	3.3E-07	2.2E-07	4.5E-07	3.2E-06
	1,2,3,7,8,9-HxCDD	2.1E-07	2.5E-07	4.0E-07	2.7E-07	3.3E-07	4.7E-06
	1,2,3,4,7,8-HxCDF	3.9E-07	2.0E-07	1.0E-06	4.8E-07	5.8E-07	8.4E-07
	1,2,3,6,7,8-HxCDF	1.5E-07	8.0E-08	3.1E-07	2.6E-07	3.0E-07	5.7E-07
	1,2,3,7,8,9-HxCDF	1.2E-07	8.4E-08	4.1E-07	2.0E-07	1.3E-07	1.6E-07
	2,3,4,6,7,8-HxCDF	2.1E-07	1.4E-07	1.6E-06	2.8E-07	3.5E-07	6.2E-07
	1,2,3,4,6,7,8-HpCDD	1.3E-06	1.2E-06	2.3E-06	1.5E-06	1.4E-05	6.1E-05
	1,2,3,4,6,7,8-HpCDF	1.6E-06	8.8E-07	5.1E-06	2.4E-06	5.5E-06	1.3E-05
	1,2,3,4,7,8,9-HpCDF	4.1E-07	2.2E-07	1.5E-06	3.2E-07	4.9E-07	9.3E-07
	OCTACHLORODIBENZODIOXIN	6.2E-06	6.9E-06	1.7E-05	7.9E-06	1.4E-04	5.6E-04
	OCTACHLORODIBENZOFURAN	3.6E-06	4.3E-06	1.7E-05	5.8E-06	1.2E-05	2.1E-05
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	2.9E-07	2.0E-08	4.7E-07	8.3E-08	4.2E-07	2.8E-06

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-14 0.5 ft	OBS-95-15 0.5 ft	OBS-95-16 0.5 ft	OBS-95-17 0.5 ft	OBS-95-18 0.5 ft	OBS-95-19 0.5 ft
DIOXINS	2,3,7,8-TCDD	2.0E-07	7.0E-08	1.0E-07	6.8E-07	8.3E-07	3.8E-07
	2,3,7,8-TCDF	1.2E-06	1.7E-07	3.5E-07	6.9E-06	3.4E-06	6.4E-06
	1,2,3,7,8-PeCDD	9.6E-07	2.9E-07	2.4E-07	2.7E-06	1.6E-06	1.1E-06
	1,2,3,7,8-PeCDF	8.7E-07	1.4E-07	1.4E-07	2.3E-06	7.4E-07	1.1E-06
	2,3,4,7,8-PeCDF	6.7E-07	1.2E-07	1.9E-07	3.4E-06	1.0E-06	1.6E-06
	1,2,3,4,7,8-HxCDD	2.0E-06	5.3E-07	1.6E-07	3.0E-06	1.2E-06	9.7E-07
	1,2,3,6,7,8-HxCDD	4.6E-06	3.6E-07	4.0E-07	7.0E-06	3.3E-06	3.0E-06
	1,2,3,7,8,9-HxCDD	4.2E-06	4.3E-07	3.8E-07	1.0E-05	4.4E-06	3.8E-06
	1,2,3,4,7,8-HxCDF	3.4E-06	1.9E-07	5.8E-07	8.3E-06	1.5E-06	2.7E-06
	1,2,3,6,7,8-HxCDF	2.2E-06	8.0E-08	2.1E-07	4.2E-06	7.8E-07	1.1E-06
	1,2,3,7,8,9-HxCDF	8.8E-07	1.4E-07	1.2E-07	8.4E-07	4.3E-07	3.5E-07
	2,3,4,6,7,8-HxCDF	2.0E-06	1.0E-08	2.6E-07	5.7E-06	9.2E-07	1.3E-06
	1,2,3,4,6,7,8-HpCDD	4.1E-05	4.1E-06	5.2E-06	1.1E-04	2.7E-05	5.4E-05
	1,2,3,4,6,7,8-HpCDF	3.9E-06	1.2E-06	2.9E-06	3.1E-05	4.2E-06	9.2E-06
	1,2,3,4,7,8,9-HpCDF	1.1E-03	1.9E-07	4.3E-07	1.4E-06	5.3E-07	7.5E-07
	OCTACHLORODIBENZODIOXIN	1.4E-04	2.3E-05	4.1E-05	3.9E-04	6.7E-05	3.2E-04
	OCTACHLORODIBENZOFURAN		3.1E-06	5.8E-06	1.6E-05	3.8E-06	1.2E-05
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	5.9E-06	2.3E-07	2.2E-07	1.0E-05	3.2E-06	4.1E-06

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-20 0.5 ft	OBS-95-20 0.5 ft (dup)	OBS-95-21 0.5 ft	OBS-95-22 0.5 ft	OBS-95-23 0.5 ft	OBS-95-24 0.5 ft
DIOXINS	2,3,7,8-TCDD	1.4E-07	2.6E-07	2.0E-07	3.4E-07	1.9E-07	3.2E-07
	2,3,7,8-TCDF	6.4E-07	6.2E-07	1.9E-06	6.8E-06	1.3E-06	1.2E-06
	1,2,3,7,8-PeCDD	3.0E-07	3.1E-07	2.6E-07	1.3E-06	3.4E-07	2.7E-07
	1,2,3,7,8-PeCDF	3.5E-07	2.4E-07	4.6E-07	4.8E-06	7.2E-07	2.7E-07
	2,3,4,7,8-PeCDF	3.5E-07	3.5E-07	6.4E-07	2.2E-06	5.1E-07	3.7E-07
	1,2,3,4,7,8-HxCDD	4.0E-07	3.5E-07	6.2E-07	1.5E-06	4.5E-07	5.9E-07
	1,2,3,6,7,8-HxCDD	4.3E-07	5.5E-07	4.9E-07	4.1E-06	9.6E-07	3.5E-07
	1,2,3,7,8,9-HxCDD	4.3E-07	3.5E-07	6.1E-07	5.7E-06	1.4E-06	4.5E-07
	1,2,3,4,7,8-HxCDF	5.3E-07	5.1E-07	4.5E-06	6.5E-06	4.1E-06	1.9E-06
	1,2,3,6,7,8-HxCDF	3.6E-07	2.0E-07	1.3E-06	1.8E-06	1.1E-06	4.7E-07
	1,2,3,7,8,9-HxCDF	1.9E-07	1.0E-07	1.7E-06	1.5E-06	1.0E-06	4.4E-07
	2,3,4,6,7,8-HxCDF	4.7E-07	2.8E-07	5.8E-06	5.4E-06	4.8E-06	1.1E-06
	1,2,3,4,6,7,8-HpCDD	5.3E-06	5.6E-06	7.5E-06	8.3E-05	1.9E-05	3.3E-06
	1,2,3,4,6,7,8-HpCDF	2.0E-06	1.8E-06	1.9E-05	2.9E-05	1.7E-05	5.5E-06
	1,2,3,4,7,8,9-HpCDF	2.1E-07	2.5E-07	6.1E-06	5.4E-06	4.1E-06	9.4E-07
	OCTACHLORODIBENZODIOXIN	3.8E-05	3.7E-05	5.8E-05	6.0E-04	1.3E-04	2.1E-05
	OCTACHLORODIBENZOFURAN	3.5E-06	3.8E-06	1.0E-04	6.6E-05	4.4E-05	1.2E-05
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	4.3E-07	3.0E-07	1.7E-06	6.5E-06	1.4E-06	2.3E-07

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Surface Soil (continued)

Group	Analytes	OBS-95-25 0.5 ft	OBS-95-26 0.5 ft	OBS-95-27 0.5 ft	OBS-95-28 0.5 ft	OBS-95-28 0.5 ft (dup)
DIOXINS	2,3,7,8-TCDD	2.6E-07	6.3E-07	5.7E-07	3.7E-07	1.0E-06
	2,3,7,8-TCDF	2.3E-06	5.1E-06	7.6E-07	1.0E-06	1.5E-06
	1,2,3,7,8-PeCDD	4.7E-07	6.5E-07	5.6E-07	3.5E-07	8.7E-07
	1,2,3,7,8-PeCDF	4.9E-07	2.0E-06	9.0E-07	7.0E-07	8.3E-07
	2,3,4,7,8-PeCDF	7.0E-07	2.3E-06	9.4E-07	5.0E-07	8.6E-07
	1,2,3,4,7,8-HxCDD	9.6E-07	6.9E-07	6.3E-06	9.6E-07	2.8E-06
	1,2,3,6,7,8-HxCDD	5.7E-07	1.0E-06	3.7E-06	8.6E-07	1.7E-06
	1,2,3,7,8,9-HxCDD	7.3E-07	2.0E-06	4.8E-06	7.9E-07	2.1E-06
	1,2,3,4,7,8-HxCDF	3.1E-06	1.1E-05	4.1E-07	3.4E-06	1.6E-06
	1,2,3,6,7,8-HxCDF	8.7E-07	3.3E-06	2.8E-07	9.6E-07	6.0E-07
	1,2,3,7,8,9-HxCDF	4.5E-07	1.9E-06	5.7E-07	9.9E-07	1.2E-06
	2,3,4,6,7,8-HxCDF	1.4E-06	7.5E-06	4.0E-07	3.2E-06	8.5E-07
	1,2,3,4,6,7,8-HpCDD	4.9E-06	1.6E-05	3.3E-06	1.7E-05	1.7E-05
	1,2,3,4,6,7,8-HpCDF	6.1E-06	3.5E-05	2.9E-06	1.1E-05	7.9E-06
	1,2,3,4,7,8,9-HpCDF	9.0E-07	7.3E-06	1.1E-06	2.5E-06	1.5E-06
	OCTACHLORODIBENZODIOXIN	3.9E-05	1.3E-04	2.1E-05	1.6E-04	1.5E-04
	OCTACHLORODIBENZOFURAN	1.4E-05	1.2E-04	9.4E-06	1.8E-05	1.5E-05
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	5.6E-07	4.2E-06	8.5E-08	1.6E-06	3.7E-07

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil

Group	Analytes	OBP-92-101 5 ft	OBP-92-102 5 ft	OBP-92-103 4 ft	OBP-92-104 10 ft	OBP-92-201 2 ft	OBP-92-202 5 ft
ANIONS	FLUORIDE	19.2	U	19.2	U	19.2	U
	NITRATE	3.36	U	4.58	U	3.36	U
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.352	U	0.352	U	0.352	U
	2,4-DINITROTOLUENE	0.744	U	0.744	U	0.744	U
	2,4,6-TRINITROTOLUENE	0.931	U	0.931	U	0.931	U
	RDX	0.445	U	0.445	U	0.445	U
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ANTIMONY	68	U	34	U	60.6	U
	ARSENIC	24	U	24	U	24	U
	BARIUM	180	56	120	62	310	2300
	BERYLLIUM	0.078	U	0.078	U	0.078	U
	CADMIUM	4.2	U	0.424	U	0.424	U
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	26.5	5.96	15.6	7.81	10.8	150
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	110	5.21	43	9.7	110	1700
	IRON	40000	6500	24000	14000	13000	290000
	LEAD	580	7	160	12	11000	3600
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	0.443	0.0543	0.168	0.0962	0.0643	0.0259
	NICKEL	7.47	2.46	2.46	2.46	2.46	110
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	0.156	0.0345	0.115	0.0376	0.77	5
	SODIUM	NA	NA	NA	NA	NA	NA
	THALLIUM	170	170	170	170	170	347
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	380	22.8	1200	150	380	11000
SEMIVOLATILES	2,4-DINITROTOLUENE	0.39	U	0.39	U	0.39	U
	BIS (2-ETHYHEXYL) PHTHALATE	0.39	U	1.1	0.39	0.39	U
	N-NITROSO DIPHENYLAMINE	0.33	UJ	0.33	UJ	0.33	UJ

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-92-203 7.5 ft	OBP-92-204 12 ft	OBP-92-301 1 ft	OBP-92-302 5 ft	OBP-92-303 7.5 ft	OBP-92-304 10 ft
ANIONS	FLUORIDE	19.2	19.2	19.2	12.4	19.2	19.2
	NITRATE	3.36	9.47	2.67	2.67	3.36	2.67
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.352	0.352	7.4	17	0.352	0.352
	2,4-DINITROTOLUENE	0.744	0.744	0.744	0.744	0.744	0.744
	2,4,6-TRINITROTOLUENE	0.931	0.931	8.52	16	0.931	0.931
	RDX	0.445	0.445	0.445	0.445	0.445	0.445
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ANTIMONY	340	34	34	34	34	34
	ARSENIC	24	240	48	240	240	240
	BARIUM	1700	170	120	68	190	130
	BERYLLIUM	0.078	0.078	0.078	0.078	0.78	0.16
	CADMIUM	4.2	0.424	0.424	0.424	4.2	0.85
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	220	24.8	14.1	9.46	39	7.8
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	10000	20	7.33	3.59	20	4.8
	IRON	110000	29000	13000	9200	12000	8700
	LEAD	17000	28	7.3	5.5	7.2	4.6
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	0.0259	0.0259	0.0259	0.0776	0.0259	0.0259
	NICKEL	48	2.46	2.46	2.46	25	4.9
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	12	0.0778	0.0356	0.043	0.0146	0.0146
	SODIUM	NA	NA	NA	NA	NA	NA
	THALLIUM	170	170	170	170	1700	1700
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	7700	75	35	17.3	80	16
SEMIVOLATILES	2,4-DINITROTOLUENE	0.39	0.39	0.39	0.39	0.39	0.39
	BIS (2-ETHYHEXYL) PHTHALATE	0.39	0.39	0.39	0.39	0.39	0.39
	N-NITROSO DIPHENYLAMINE	0.33	0.33	0.33	0.33	0.33	0.33

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-92-401 2.5 ft	OBP-92-402 5 ft	OBP-92-403 7.5 ft	OBP-92-404 9 ft	OBP-94-01B 2 ft	OBP-94-01C 5 ft
ANIONS	FLUORIDE	19.2	19.2	19.2	19.2	NA	NA
	NITRATE	3.36	2.67	3.36	3.36	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.352	0.352	0.352	0.352	0.922	0.922
	2,4-DINITROTOLUENE	0.744	0.744	25	0.744	2.5	2.5
	2,4,6-TRINITROTOLUENE	0.931	0.931	0.931	0.931	2	2
	RDX	0.445	0.445	0.445	0.445	1.28	9.41
METALS	ALUMINUM	NA	NA	NA	NA	6580	1100
	ANTIMONY	34	34	34	34	19.6	19.6
	ARSENIC	72	72	24	24	9.19	3.14
	BARIUM	100	98	33	38	65.2	142
	BERYLLIUM	0.078	0.078	0.078	0.078	0.427	0.427
	CADMIUM	0.424	0.424	0.424	0.424	1.2	1.2
	CALCIUM	NA	NA	NA	NA	14200	120000
	CHROMIUM	10.9	9.93	6.03	3.9	11.7	6.05
	COBALT	NA	NA	NA	NA	2.75	2.5
	COPPER	10.8	9.43	4.23	2.61	6.46	7.77
	IRON	10000	11000	7300	2700	10900	1490
	LEAD	8.5	8.4	4.2	2.4	7.44	17.7
	MAGNESIUM	NA	NA	NA	NA	2220	5120
	MANGANESE	NA	NA	NA	NA	25.4	128
	MERCURY	0.0259	0.0259	0.0302	0.0259	0.05	0.0684
	NICKEL	2.46	2.46	2.46	2.46	5.19	4.84
	POTASSIUM	NA	NA	NA	NA	1740	302
	SILVER	0.0405	0.0276	0.0146	0.0146	0.803	0.803
	SODIUM	NA	NA	NA	NA	160	273
	THALLIUM	50	50	170	170	34.3	34.3
	VANADIUM	NA	NA	NA	NA	19.5	3.56
	ZINC	64	53	14.9	15.5	21.3	31.9
SEMIVOLATILES	2,4-DINITROTOLUENE	1.4	0.39	0.39	0.39	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	0.39	0.39	0.39	0.39	NA	NA
	N-NITROSO DIPHENYLAMINE	0.1	0.33	0.33	0.33	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-01D 7 ft	OBP-94-02B 2 ft	OBP-94-02C 5 ft	OBP-94-02D 7 ft	OBP-94-02E 10 ft	OBP-94-02F 3 ft
ANIONS	FLUORIDE	NA	NA	NA	NA	NA	NA
	NITRATE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	UR	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U
METALS	ALUMINUM	1100	U	1180	U	6750	13600
	ANTIMONY	19.6	U	19.6	U	19.6	19.6
	ARSENIC	3.03	U	2.5	U	3.13	4.29
	BARIUM	151	U	8.77	U	79.8	99
	BERYLLIUM	0.427	U	0.427	U	0.427	0.548
	CADMIUM	1.2	U	1.2	U	1.2	1.2
	CALCIUM	100000	U	15500	U	100000	2740
	CHROMIUM	8.16	U	1.62	U	1.62	16
	COBALT	2.5	U	2.5	U	2.5	4.75
	COPPER	9.31	U	2.84	U	5.17	10.6
	IRON	1490	U	1300	U	6500	11800
	LEAD	14.9	U	7.44	U	7.44	19.1
	MAGNESIUM	5770	U	178	U	5410	3310
	MANGANESE	131	U	21.2	U	21.2	239
	MERCURY	0.0558	U	0.05	U	0.05	0.05
	NICKEL	5.45	U	2.74	U	4.02	7.21
	POTASSIUM	302	U	320	U	1620	3610
	SILVER	0.803	U	0.803	U	0.803	0.803
	SODIUM	315	U	51	U	213	232
	THALLIUM	34.3	U	34.3	U	34.3	34.3
	VANADIUM	3.56	U	3.15	U	3.15	19.7
	ZINC	39.6	U	3	U	16.6	48.1
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-03B 2 ft	OBP-94-03C 5 ft	OBP-94-03D 7 ft	OBP-94-04B 2 ft	OBP-94-04C 5 ft	OBP-94-04D 7 ft
ANIONS	FLUORIDE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	NITRATE	0.922	0.922	0.922	0.922	0.922	0.922
	1,3,5-TRINITROBENZENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4-DINITROTOLUENE	2	2	2	2	2	2
	2,4,6-TRINITROTOLUENE	1.28	1.28	1.28	1.28	1.28	1.28
	RDX	1180	1180	1180	11500	8470	7830
METALS	ALUMINUM	19.6	19.6	19.6	19.6	19.6	19.6
	ANTIMONY	2.5	2.5	2.5	4.55	3.88	3.56
	ARSENIC	8.77	8.77	8.77	103	59	68.7
	BARIUM	0.427	0.427	0.427	0.427	0.427	0.427
	BERYLLIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CADMIUM	857	18800	5800	21000	16000	36300
	CALCIUM	1.62	1.62	1.62	14.7	11.6	10.2
	CHROMIUM	2.5	2.5	2.5	2.94	4.23	2.5
	COBALT	2.84	2.84	3.54	16.6	10	5.59
	COPPER	1300	1300	1300	10100	9780	8340
	IRON	7.44	10	19	25.9	11.8	7.44
	LEAD	178	1450	1000	3430	5080	4690
	MAGNESIUM	21.2	21.2	21.2	190	167	108
	MANGANESE	0.05	0.05	0.05	0.05	0.05	0.0578
	MERCURY	2.74	2.74	2.74	7.15	7.95	4.5
	NICKEL	320	320	320	3060	2250	2380
	POTASSIUM	0.803	0.803	0.803	0.803	0.803	0.803
	SILVER	38.7	103	252	257	205	314
	SODIUM	34.3	34.3	34.3	34.3	34.3	34.3
	THALLIUM	3.15	3.15	3.15	21.8	17.1	15.8
	VANADIUM	3	3	3	87	35.3	16.2
	ZINC	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-05C 5 ft	OBP-94-05D 7 ft	OBP-94-05E 10 ft	OBP-94-06B 2 ft	OBP-94-06C 5 ft	OBP-94-06D 7 ft
ANIONS	FLUORIDE	NA	NA	NA	NA	NA	NA
	NITRATE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	U	0.922	U	0.922
	2,4-DINITROTOLUENE	2.5	2.5	U	2.5	U	2.5
	2,4,6-TRINITROTOLUENE	2	2	U	2	U	2
	RDX	1.28	1.28	U	1.28	U	1.28
METALS	ALUMINUM	8780	1100	U	8920	U	1100
	ANTIMONY	19.6	19.6	U	19.6	U	19.6
	ARSENIC	5.29	3.97	U	3.36	U	3.51
	BARIUM	57.7	10.1	U	89.7	U	76.8
	BERYLLIUM	0.427	0.427	U	0.427	U	0.427
	CADMIUM	46.5	12.6	U	1.2	U	1.2
	CALCIUM	11100	6840	20400	24600	37800	54800
	CHROMIUM	8.59	6.88	U	10.5	U	9.32
	COBALT	2.5	2.63	U	3.45	U	3.25
	COPPER	2600	311	16.4	7.12	3.32	4.89
	IRON	8630	1490	1490	9830	1490	1490
	LEAD	30.7	96.9	18.3	7.44	7.44	7.44
	MAGNESIUM	1610	1050	2100	3840	4650	4670
	MANGANESE	142	25.4	25.4	192	25.4	25.4
	MERCURY	0.05	0.05	U	0.05	U	0.057
	NICKEL	6.01	3.36	2.74	5.66	2.74	4.36
	POTASSIUM	1550	302	302	2330	302	302
	SILVER	0.803	0.803	U	0.803	U	0.803
	SODIUM	89.5	60.5	38.7	114	197	161
	THALLIUM	34.3	34.3	U	34.3	U	34.3
	VANADIUM	3.56	3.56	UJ	3.56	UJ	3.56
	ZINC	2300	380	55.9	29.5	3.92	3.92
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	UJ	NA	U	U
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	UJ	NA	U	U
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-06E 10 ft	OBP-94-07B 2 ft	OBP-94-07C 5 ft	OBP-94-07D 7 ft	OBP-94-07E 10 ft	OBP-94-08B 2 ft
ANIONS	FLUORIDE	NA	NA	NA	NA	NA	NA
	NITRATE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U
METALS	ALUMINUM	1100	U	1100	U	1100	U
	ANTIMONY	19.6	U	19.6	U	19.6	U
	ARSENIC	2.5	U	3.31	U	7.09	U
	BARIUM	10.1	U	81.1	U	56.6	U
	BERYLLIUM	0.427	U	0.427	U	0.427	U
	CADMIUM	1.2	U	1.2	U	1.2	U
	CALCIUM	27800	U	38200	U	35700	U
	CHROMIUM	1.16	U	7.52	U	8.04	U
	COBALT	2.5	U	2.5	U	2.5	U
	COPPER	2.84	U	30.5	U	19.1	U
	IRON	1490	U	1490	U	8220	U
	LEAD	7.44	U	66.6	U	50.9	U
	MAGNESIUM	1640	U	3820	U	4620	U
	MANGANESE	25.4	U	142	U	135	U
	MERCURY	0.05	U	0.173	U	0.05	U
	NICKEL	2.74	U	3.38	U	6.59	U
	POTASSIUM	302	U	302	U	302	U
	SILVER	0.803	U	0.803	U	0.803	U
	SODIUM	85.5	U	114	U	140	U
	THALLIUM	34.3	U	34.3	U	34.3	U
	VANADIUM	3.56	U	3.56	U	3.56	U
	ZINC	3.92	U	102	U	94.3	U
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-08C 5 ft	OBP-94-08D 7 ft	OBP-94-08E 10 ft	OBP-94-09B 2 ft	OBP-94-09C 5 ft	OBP-94-09C 5 ft (dup)
ANIONS	FLUORIDE	NA	NA	NA	NA	NA	NA
	NITRATE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	RDX	1.28	1.28	1.28	1.28	1.28	1.28
METALS	ALUMINUM	1100	1100	1100	18600	5500	4580
	ANTIMONY	19.6	19.6	19.6	19.6	19.6	19.6
	ARSENIC	2.68	2.5	2.5	4.51	4.72	4.6
	BARIUM	99.3	10.1	10.1	148	55.9	51.1
	BERYLLIUM	0.427	0.427	0.427	0.767	0.427	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	61000	15900	17100	3940	23500	21700
	CHROMIUM	7.69	1.16	1.16	20.6	8.1	7.58
	COBALT	3.16	2.5	2.5	4.2	2.79	2.96
	COPPER	4.37	2.84	5.24	13.3	2.84	4.7
	IRON	1490	1490	1490	16900	7280	6570
	LEAD	7.44	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	3790	943	1450	6180	2520	2230
	MANGANESE	25.4	25.4	25.4	387	27.9	27.9
	MERCURY	0.0542	0.05	0.05	0.05	0.05	0.05
	NICKEL	3.58	2.74	2.74	10.1	4.74	5.65
	POTASSIUM	302	302	302	5470	1050	902
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	223	50.2	80.6	317	188	173
	THALLIUM	34.3	34.3	34.3	34.3	34.3	34.3
	VANADIUM	3.56	3.56	3.56	26.4	2.81	2.81
	ZINC	3.92	3.92	3.92	53.1	18.6	3.53
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-09D 7 ft	OBP-94-09E 10 ft	OBP-94-09E 10 ft (dup)	OBP-94-10B 2 ft	OBP-94-10C 5 ft	OBP-94-10D 7 ft
ANIONS	FLUORIDE	NA	NA	NA	NA	NA	NA
	NITRATE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	UJ	UJ	0.922	UJ	0.922
	2,4-DINITROTOLUENE	2.5	U	U	2.5	U	2.5
	2,4,6-TRINITROTOLUENE	2	U	U	2	U	2
	RDX	1.28	U	U	1.28	U	1.28
METALS	ALUMINUM	7760	U	U	777	U	777
	ANTIMONY	19.6	U	U	19.6	U	19.6
	ARSENIC	4.27	U	U	4.27	U	4.27
	BARUM	99.3	U	U	99.3	U	99.3
	BERYLLIUM	0.427	U	U	0.427	U	0.427
	CADMIUM	1.2	U	U	1.2	U	1.2
	CALCIUM	22000	U	U	22000	U	22000
	CHROMIUM	9.2	U	U	9.2	U	9.2
	COBALT	3.37	U	U	3.37	U	3.37
	COPPER	17.3	U	U	17.3	U	17.3
	IRON	9530	U	U	9530	U	9530
	LEAD	7.82	U	U	7.82	U	7.82
	MAGNESIUM	4180	U	U	4180	U	4180
	MANGANESE	227	U	U	227	U	227
	MERCURY	0.05	U	U	0.05	U	0.05
	NICKEL	6.9	U	U	6.9	U	6.9
	POTASSIUM	2080	U	U	2080	U	2080
	SILVER	0.803	U	U	0.803	U	0.803
	SODIUM	215	U	U	215	U	215
	THALLIUM	34.3	U	U	34.3	U	34.3
	VANADIUM	15	U	U	15	U	15
	ZINC	97.8	U	U	97.8	U	97.8
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-94-10E 10 ft	OBP-94-12B 2 ft	OBP-94-12C 5 ft	OBP-94-12D 7 ft	OBP-94-12E 10 ft
ANIONS	FLUORIDE	NA	NA	NA	NA	NA
	NITRATE	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2
	RDX	1.28	1.28	1.28	1.28	1.28
METALS	ALUMINUM	777	7660	16600	17200	6640
	ANTIMONY	19.6	19.6	19.6	19.6	19.6
	ARSENIC	5.07	3.57	3.39	3.94	2.5
	BARIUM	8.36	77.7	165	145	74.2
	BERYLLIUM	0.427	0.427	0.726	0.602	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2
	CALCIUM	12900	29200	93000	140000	66000
	CHROMIUM	5.11	10.5	13.2	15.4	9.77
	COBALT	2.5	3.76	5.91	5.54	3.35
	COPPER	4.77	5.76	7.47	9.64	3.75
	IRON	6740	9360	14800	15300	7110
	LEAD	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	2060	3630	14100	13600	6210
	MANGANESE	27.9	184	182	297	27.9
	MERCURY	0.05	0.05	0.05	0.05	0.05
	NICKEL	3.95	6.58	10.9	10.4	4.64
	POTASSIUM	158	1950	4740	4820	1610
	SILVER	0.803	0.803	0.803	0.803	0.803
	SODIUM	93	163	2300	2310	769
	THALLIUM	34.3	34.3	34.3	34.3	34.3
	VANADIUM	2.81	16.9	21.7	22.6	2.81
	ZINC	3.53	24.6	38.1	35.7	3.53
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	NA	NA	NA
	N-NITROSO DIPHENYLAMINE	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-95-01B 2 ft	OBP-95-01C 4 ft	OBP-95-02B 5 ft	OBP-95-02C 7 ft	OBP-95-02C 7 ft (dup)	OBP-95-03B 1.5 ft
DIOXINS	2,3,7,8-TCDD	8.5E-07	1.3E-06	2.5E-06	1.8E-06	4.6E-07	6.0E-06
	2,3,7,8-TCDF	1.5E-06	1.3E-06	2.7E-05	2.2E-06	4.2E-07	9.9E-05
	1,2,3,7,8-PeCDD	4.3E-06	1.2E-06	1.4E-05	1.0E-05	9.1E-07	2.0E-05
	1,2,3,7,8-PeCDF	3.9E-07	9.0E-07	7.1E-06	7.0E-07	4.2E-07	1.9E-05
	2,3,4,7,8-PeCDF	5.0E-07	9.8E-07	1.1E-05	1.1E-06	4.6E-07	2.8E-05
	1,2,3,4,7,8-HxCDD	4.0E-06	1.1E-06	1.4E-05	8.5E-06	1.3E-06	1.4E-05
	1,2,3,6,7,8-HxCDD	1.3E-05	8.6E-07	2.8E-05	1.7E-05	4.5E-07	5.3E-05
	1,2,3,7,8,9-HxCDD	1.6E-05	9.5E-07	5.2E-05	3.2E-05	1.2E-06	6.8E-05
	1,2,3,4,7,8-HxCDF	1.1E-06	6.6E-07	2.2E-05	2.3E-06	5.3E-07	4.0E-05
	1,2,3,6,7,8-HxCDF	5.5E-07	5.8E-07	8.9E-06	7.6E-07	4.7E-07	1.6E-05
	1,2,3,7,8,9-HxCDF	3.0E-07	9.1E-07	3.2E-06	4.8E-07	7.4E-07	5.8E-06
	2,3,4,6,7,8-HxCDF	1.1E-06	7.0E-07	1.4E-05	1.6E-06	3.1E-07	2.4E-05
	1,2,3,4,6,7,8-HpCDD	2.4E-04	3.1E-06	3.5E-04	1.9E-04	4.6E-06	5.5E-04
	1,2,3,4,6,7,8-HpCDF	9.7E-06	1.5E-06	3.7E-05	7.6E-06	1.3E-06	9.7E-05
	1,2,3,4,7,8,9-HpCDF	1.0E-06	8.6E-07	5.0E-06	1.2E-06	3.1E-07	6.0E-06
	OCTACHLORODIBENZODIOXIN	7.7E-04	6.0E-06	7.1E-04	3.7E-04	1.2E-05	1.4E-03
	OCTACHLORODIBENZOFURAN	1.3E-05	5.6E-06	3.3E-05	1.4E-05	5.9E-06	6.5E-05
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	1.0E-05	9.5E-08	3.7E-05	1.4E-05	1.8E-07	7.1E-05

Summary of Analytes Detected in Soil for the Old Burn Area (SWMU 6)

Subsurface Soil (continued)

Group	Analytes	OBP-95-03C 4 ft	OBP-95-04B 1 ft	OBP-95-04C 2.5 ft
DIOXINS	2,3,7,8-TCDD	U	U	7.9E-07 U
	2,3,7,8-TCDF	2.0E-06	4.8E-06	4.5E-07
	1,2,3,7,8-PeCDD	8.0E-07 U	1.5E-06	6.8E-07 U
	1,2,3,7,8-PeCDF	3.6E-07	1.4E-06	3.0E-07 U
	2,3,4,7,8-PeCDF	4.4E-07	2.2E-06	3.3E-07 U
	1,2,3,4,7,8-HxCDD	5.8E-07 U	1.2E-06	3.8E-07 U
	1,2,3,6,7,8-HxCDD	1.4E-06	2.8E-06 U	3.1E-07 U
	1,2,3,7,8,9-HxCDD	1.8E-06	3.6E-06	3.4E-07 U
	1,2,3,4,7,8-HxCDF	6.4E-07 U	5.0E-06	3.1E-07 U
	1,2,3,6,7,8-HxCDF	5.2E-07 U	2.3E-06	2.8E-07 U
	1,2,3,7,8,9-HxCDF	1.9E-07	6.7E-07 U	4.3E-07 U
	2,3,4,6,7,8-HxCDF	4.8E-07	2.3E-06 U	3.4E-07 U
	1,2,3,4,6,7,8-HpCDD	1.5E-05	3.8E-05	2.1E-06
	1,2,3,4,6,7,8-HpCDF	2.4E-06 U	1.3E-05	1.0E-06 U
	1,2,3,4,7,8,9-HpCDF	7.5E-07 U	1.9E-06 U	3.9E-07 U
	OCTACHLORODIBENZODIOXIN	4.2E-05	1.6E-04	9.3E-06
	OCTACHLORODIBENZOFURAN	5.9E-06 U	1.7E-05	3.3E-06
	TOTAL 2,3,7,8-TCDD EQUIVALENTS	1.0E-06	4.0E-06	7.9E-08

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit.

Dup = Duplicate analysis

J = Value is estimated

GT = Greater than.

TCDD = Tetrachlorodibenzo-p-dioxin.

TCDF = Tetrachlorodibenzofuran.

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Surface Soil

Group	Analytes	CRS-92-101 0 ft	CRS-92-201 0 ft	CRS-92-301 0 ft	CRP-94-15A 0.5 ft	CRS-94-17 0.5 ft	CRS-94-18 0.5 ft
METALS	ALUMINUM	NA	NA	NA	12,700	19,700	23,200
	ARSENIC	72	240	48	3.25	5.08	5.24
	BARIUM	130	140	130	93.6	143	147
	BERYLLIUM	0.078	0.078	0.078	0.556	0.539	0.718
	CALCIUM	NA	NA	NA	19,600	13,100	15,600
	CHROMIUM	16.6	17.6	14	13.9	22.7	25.4
	COBALT	NA	NA	NA	3.51	6.84	6.95
	COPPER	9.75	8.4	8.48	7.35	22.1	14.2
	IRON	17,000	19,000	19,000	13,600	17,300	19,600
	LEAD	8.4	11	7	7.44	31.2	11.7
	MAGNESIUM	NA	NA	NA	5,970	7,780	8,780
	MANGANESE	NA	NA	NA	25.9	480	455
	NICKEL	2.46	2.46	2.46	11.5	11.4	13.2
	POTASSIUM	NA	NA	NA	2,060	5,670	6,450
	SILVER	0.0692	0.0524	0.0497	0.803	0.803	0.803
	SODIUM	NA	NA	NA	3,850	358	331
	VANADIUM	NA	NA	NA	21.5	26.6	29.7
	ZINC	64	45	45	28.2	61.5	56.2
	BUTYL BENZYL PHTHALATE	0.33	0.33	0.292	1.8	1.8	1.8
	SEMIVOLATILES	UJ	IJ	U	U	U	U

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Subsurface Soil

Group	Analytes	CRT-92-101 2.5 ft	CRT-92-102 5 ft	CRT-92-103 7.5 ft	CRT-92-104 10 ft	CRT-92-201 2.5 ft	CRT-92-202 5 ft
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	240	72	240	24	240	72
	BARIUM	130	140	110	45	190	130
	BERYLLIUM	0.078	0.078	0.078	0.078	0.078	0.078
	CADMIUM	0.424	0.424	0.424	0.424	0.424	0.424
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	15.1	17.5	12.6	5.41	18.3	14.9
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	6.62	16.3	7.32	6.26	7.63	6.05
	IRON	16,000	22,000	15,000	8,200	21,000	16,000
	LEAD	14	31	9.4	4.9	11	8.7
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	NICKEL	2.46	2.46	2.46	2.46	2.46	2.46
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	0.0461	0.0389	0.0277	0.0166	0.0484	0.0231
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	37	800	110	88	46	36
	BENZYL ALCOHOL	0.33	0.33	0.33	0.33	0.33	0.33
SEMIVOLATILES	BIS (2-ETHYHEXYL) PHTHALATE	0.39	0.39	0.39	0.39	0.39	0.39
	BUTYLBENZYL PHTHALATE	0.33	0.33	0.33	0.33	0.33	0.665
	DI-N-BUTYL PHTHALATE	0.33	0.33	0.33	0.33	0.33	0.33
	HEXACHLOROBENZENE	0.26	0.26	0.26	0.26	0.26	0.26

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Subsurface Soil (continued)

Group	Analytes	CRT-92-203 7.5 ft	CRT-92-204 10 ft	CRT-92-301 2.5 ft	CRT-92-302 5 ft	CRT-92-303 7.5 ft	CRT-92-304 10 ft
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	72	24	48	24	24	24
	BARIUM	120	45	120	130	120	110
	BERYLLIUM	0.078	U	0.078	0.078	0.078	0.078
	CADMIUM	0.424	U	0.424	U	0.424	U
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	14.3	3.9	12.9	13.1	12.1	11.9
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	6.11	2.44	5.92	7.11	6.33	6.82
	IRON	15,000	4,900	16,000	24,000	15,000	16,000
	LEAD	8.9	4.8	12	11	9.7	10
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	NICKEL	2.46	2.46	2.46	2.46	2.46	2.46
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	0.0284	0.0166	0.0289	0.0277	0.0305	0.0293
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	37	10.9	34	42	37	39
SEMIVOLATILES	BENZYL ALCOHOL	0.33	UJ	0.33	UJ	0.33	UJ
	BIS (2-ETHYHEXYL) PHTHALATE	0.39	U	0.39	U	0.39	U
	BUTYLBENZYL PHTHALATE	0.33	UJ	0.33	UJ	0.33	UJ
	DI-N-BUTYL PHTHALATE	0.33	UJ	0.33	UJ	0.33	UJ
	HEXACHLOROBENZENE	0.26	U	0.26	U	0.26	U

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Subsurface Soil (continued)

Group	Analytes	CRP-94-01A 5 ft	CRP-94-01B 7 ft	CRP-94-01C 9 ft	CRP-94-01D 10 ft	CRP-94-02A 5 ft	CRP-94-02B 7 ft
METALS	ALUMINUM	17,600	10,800	12,700	4,630	17,800	15,900
	ARSENIC	5.67	4.77	5.85	3.58	17.5	5.02
	BARIUM	139	89.4	126	46.6	123	111
	BERYLLIUM	0.842	0.562	0.657	0.427	0.701	0.73
	CADMIUM	1.2	1.2	2.63	1.2	9.48	1.2
	CALCIUM	39,500	19,800	25,200	14,500	23,600	27,200
	CHROMIUM	17.6	11.4	18.8	5.66	19.2	16.5
	COBALT	8.05	5.17	6.39	3.06	7.52	6.7
	COPPER	10.1	12.2	28.8	32.1	99.6	7.7
	IRON	18,100	13,200	22,300	10,200	25,100	15,200
	LEAD	7.44	7.44	48.5	7.44	19.6	7.44
	MAGNESIUM	7,280	5,390	5,470	2,300	6,740	6,420
	MANGANESE	381	287	326	27.9	448	357
	NICKEL	13.3	9.35	11.9	4.96	15.5	11.3
	POTASSIUM	4,260	2,650	2,860	1,080	4,370	3,290
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	333	300	291	195	249	488
	VANADIUM	29.9	19.1	20.7	2.81	26.2	24
	ZINC	47.7	218	1,040	697	12,000	51.7
	BENZYL ALCOHOL	0.032	0.032	0.032	0.032	0.032	0.064
SEMIVOLATILES	BIS (2-ETHYHEXYL) PHTHALATE	0.48	0.48	0.48	0.48	0.48	0.48
	BUTYLBENZYL PHTHALATE	1.8	1.8	1.8	1.8	1.8	1.8
	DI-N-BUTYL PHTHALATE	1.3	1.3	1.3	1.3	2.6	1.3
	HEXACHLOROBENZENE	0.08	0.08	0.08	0.08	0.34	0.08

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Subsurface Soil (continued)

Group	Analytes	CRP-94-02C 9 ft	CRP-94-02D 10 ft	CRP-94-03A 5 ft	CRP-94-03B 7 ft	CRP-94-03C 9 ft	CRP-94-03D 10 ft
METALS	ALUMINUM	13,500	20,100	16,200	17,000	9,420	17,100
	ARSENIC	4.29	6.2	6.1	6.07	3.92	5.14
	BARIUM	103	148	119	135	86.2	138
	BERYLLIUM	0.736	1.02	0.742	0.427	0.427	0.736
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	27,500	27,900	32,200	25,300	19,300	18,300
	CHROMIUM	14	20.7	15.8	15.8	10.7	16.9
	COBALT	6.06	8.56	7.26	6.93	5.18	6.38
	COPPER	11.5	42.5	9.7	8.73	4.28	9
	IRON	12,900	24,200	15,800	15,100	9,600	16,200
	LEAD	7.44	12.5	7.44	7.44	7.44	7.44
	MAGNESIUM	5,070	7,390	7,210	6,270	4,220	6,970
	MANGANESE	289	413	364	332	288	390
	NICKEL	10.9	15.2	12.2	11.5	7.91	11.3
	POTASSIUM	2,690	4,480	3,830	3,810	2,070	3,870
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	502	312	1,030	2,070	996	1,900
	VANADIUM	21.5	29.6	23.9	25.1	16.2	25.2
	ZINC	178	2500	43.8	39.7	27.9	46.4
	BENZYL ALCOHOL	0.032	0.032	0.061	0.043	0.032	0.079
SEMIVOLATILES	BIS (2-ETHYHEXYL) PHTHALATE	0.48	0.48	0.48	0.48	0.48	0.48
	BUTYLBENZYL PHTHALATE	1.8	1.8	1.8	1.8	1.8	1.8
	DI-N-BUTYL PHTHALATE	1.3	1.3	1.3	1.3	1.3	1.3
	HEXACHLOROBENZENE	0.08	0.08	0.08	0.08	0.08	0.08

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Subsurface Soil (continued)

Group	Analytes	CRP-94-04A 5 ft	CRP-94-04B 7 ft	CRP-94-04C 9 ft	CRP-94-04D 10 ft	CRP-94-05A 4 ft	CRP-94-05B 5 ft
METALS	ALUMINUM	17,300	12,300	10,600	7,410	16,700	16,200
	ARSENIC	4.55	5.23	4.26	3.86	5.53	5.57
	BARIUM	149	83.9	83.3	64.7	152	136
	BERYLLIUM	0.761	0.613	0.427	0.521	0.848	0.739
	CADMIUM	1.81	1.2	1.2	1.2	21.6	12.8
	CALCIUM	35,100	24,800	16,300	14,100	45,100	38,000
	CHROMIUM	16.5	13.4	11.2	7.92	16.5	15.5
	COBALT	6.78	5.35	4.75	3.52	8.68	7.22
	COPPER	8.21	5.34	4.91	10.2	13	11
	IRON	15,900	12,500	10,900	8,390	16,100	15,700
	LEAD	7.44	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	6,570	4,900	4,430	3,210	6,730	6,640
	MANGANESE	364	296	249	189	508	430
	NICKEL	12.3	10.3	7.53	6.32	16.8	13.8
	POTASSIUM	4,600	2,730	2,240	1,730	4,290	4,180
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	287	293	493	252	262	308
	VANADIUM	24.7	23	17	2.81	25.5	24.9
	ZINC	356	47	35.1	231	6,300	5,300
	BENZYL ALCOHOL	0.067	0.062	0.051	0.065	0.047	0.052
SEMIVOLATILES	BIS (2-ETHYHEXYL) PHTHALATE	0.48	0.48	0.48	0.48	0.48	0.48
	BUTYLBENZYL PHTHALATE	1.8	1.8	1.8	1.8	1.8	1.8
	DI-N-BUTYL PHTHALATE	1.3	1.3	1.3	1.3	1.3	1.3
	HEXACHLOROBENZENE	0.08	0.08	0.08	0.08	0.08	0.08

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Firing Point Area - Subsurface Soil (continued)

Group	Analytes	CRP-94-05C 7 ft	CRP-94-05D 10 ft	CRP-94-15B 5 ft	CRP-94-15C 10 ft
METALS	ALUMINUM	16,200	14,400	14,500	7,970
	ARSENIC	5.02	4.5	4.94	4.1
	BARIUM	125	116	86.2	72.9
	BERYLLIUM	0.785	0.77	0.604	0.427 U
	CADMIUM	1.2 U	1.2 U	1.2 U	1.2 U
	CALCIUM	30,000	20,100	38,700	37,500
	CHROMIUM	16.1	14.6	13	7.58
	COBALT	5.98	6.25	5.42	3.37
	COPPER	11.4	8.66	8.53	5.61
	IRON	16,000	14,800	13,500	8,550
	LEAD	7.44 U	7.44 U	7.44 U	7.44 U
	MAGNESIUM	6,220	5,730	6,240	4,220
	MANGANESE	359	362	286	145
	NICKEL	12.2	11.7	10.7 J	5.55 J
	POTASSIUM	3,690	3,070	3,440	1,990
	SILVER	0.803 U	0.803 U	0.803 U	0.803 U
	SODIUM	385	394	1,790	918
	VANADIUM	25	22.1	20.7	13.6
	ZINC	186	47.4	30	21.2
SEMIVOLATILES	BENZYL ALCOHOL	0.032 U	0.032 U	0.032 U	0.032 U
	BIS (2-ETHYHEXYL) PHTHALATE	0.48 U	0.48 U	0.48 U	0.48 U
	BUTYLBENZYL PHTHALATE	1.8 U	1.8 U	1.8 U	1.8 U
	DI-N-BUTYL PHTHALATE	1.3 U	1.3 U	3.2 U	3.2 U
	HEXACHLOROBENZENE	0.08 U	0.08 U	0.08 U	0.08 U

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Bullet Stop - Surface Soil

Group	Analytes	CRP-94-13A		CRP-94-14A		CRS-94-04		CRS-94-05		CRS-94-06		CRS-94-07	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
METALS	ALUMINUM	18,100		819	U	22,100		22,600		18,500		17,600	
	ARSENIC	5.42		8.64		5.64		6.24		5.42		5.05	
	BARIUM	136		8.76	U	194		201		172		147	
	BERYLLIUM	0.737		0.427	U	0.65		0.617		0.427	U	0.427	U
	CALCIUM	36,300		34,900		6,290		20,400		20,200		21,400	
	CHROMIUM	17.7		3.49		24.6		24.1		20.2		20.6	
	COBALT	5.67		2.5	U	8.12		7.02		5.68		5.57	
	COPPER	14.1		2.84	U	26.3		20.7		20.6		16.2	
	IRON	17,600		1,360	U	22,300		20,000		16,600		16,700	
	LEAD	12.8		7.44	U	29.8		19.3		24.4		136	
	MAGNESIUM	9,740		2,150		9,140		10,900		9,130		7,650	
	MANGANESE	375		25.9	U	632		615		520		400	
	NICKEL	14	J	3.63	J	13.2		11.1		10.1		9.87	
	POTASSIUM	5,700		218	U	6,450		6,920		5,860		5,280	
	SODIUM	277		126		574		528		518		421	
	THALLIUM	40.2	J	34.3	UJ	34.3	U	34.3	U	34.3	U	34.3	U
	VANADIUM	22.3		2.41	U	32.3		30.4		26		26.2	
	ZINC	50.2		38.7		71.2		66.5		59.1		49.4	

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Bullet Stop - Surface Soil (continued)

Group	Analytes	CRS-94-08		CRS-94-09		CRS-94-10		CRS-94-11		CRS-94-12		CRS-94-13	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
METALS	ALUMINUM	16,100		10,500		11,800		15,100		16,100		21,600	
	ARSENIC	6.02		4.18		3.95		4.34		5.39		4.8	
	BARIUM	141		99.5		98.5		124		124		150	
	BERYLLIUM	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.649	
	CALCIUM	19,400		16,200		10,700		9,520		34,400		44,300	
	CHROMIUM	17.7		11.8		13.5		17.3		19.4		26	
	COBALT	5.66		4.32		4.61		5.15		5.42		6.56	
	COPPER	19.5		22.1		14		17		19.9		14.8	
	IRON	16,500		11,100		12,700		15,600		15,900		19,400	
	LEAD	298		164		19.2		21.6		24.8		12.2	
	MAGNESIUM	6,190		4,180		5,540		7,370		7,880		9,680	
	MANGANESE	369		237		288		390		377		418	
	NICKEL	9.8		7.1		6.9		9.74		12.5		14.5	
	POTASSIUM	4,640		2,730		3,070		4,340		4,420		6,440	
	SODIUM	385		374		424		444		433		372	
	THALLIUM	34.3	U	34.3	U	34.3	U	34.3	U	34.3	U	34.3	U
	VANADIUM	24.6		15.8		18		21.5		23.5		30.2	
	ZINC	49.5		34.5		39.4		50.4		52.2		56	

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Bullet Stop - Surface Soil (continued)

Group	Analytes	CRS-94-14			CRS-94-15			CRS-94-16		
		0.5 ft			0.5 ft			0.5 ft		
METALS	ALUMINUM	19,200			21,000			21,400		
	ARSENIC	5.23			4.59			4.54		
	BARIUM	140			173			190		
	BERYLLIUM	0.582			0.562			0.695		
	CALCIUM	32,900			27,400			26,000		
	CHROMIUM	22.9			25.4			23.7		
	COBALT	6.45			6.63			7.6		
	COPPER	17.1			20.4			17.6		
	IRON	18,000			19,300			20,000		
	LEAD	15.9			24.4			16.5		
	MAGNESIUM	9,580			11,200			11,700		
	MANGANESE	444			502			602		
	NICKEL	13.3			11.9			13.8		
	POTASSIUM	5,530			6,600			6,960		
	SODIUM	427			573			614		
	THALLIUM	34.3	U		34.3	U		34.3	U	
	VANADIUM	25.6			30.1			27.3		
	ZINC	56.5			61.7			61.4		

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Bullet Stop - Subsurface Soil

Group	Analytes	CRP-94-13B		CRP-94-13C		CRP-94-14B		CRP-94-14C	
		5 ft	10 ft	5 ft	10 ft	5 ft	10 ft	5 ft	10 ft
METALS	ARSENIC	3.96	3.5	5.2	17.6				
	CADMIUM	1.2	1.56	1.2	1.2	U	U		
	CALCIUM	13,500	4,200	20,900	8,420				
	CHROMIUM	4.77	3.76	2.57	1.66				
	COPPER	3.99	7	2.84	2.84	U	U		
	IRON	6,850	1,360	1,360	1,360	U	U		
	MAGNESIUM	1,670	172	2,010	1,200				
	NICKEL	4.19	3.83	3.67	2.74	J	U		
	SODIUM	102	64.6	74.6	302				
	ZINC	13.7	9,900	15.6	24.3				

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Northwest Trench - Surface Soil

Group	Analytes	CRP-94-06A				CRP-94-07A				CRP-94-08A				CRP-94-09A				CRP-94-09A				CRP-94-10A			
		0.5 ft				0.5 ft				0.5 ft				0.5 ft				0.5 ft (dup)				0.5 ft			
METALS	ALUMINUM	23,700				26,300				39,800				23,600				26,500				24,600			
	ARSENIC	7.21				7				5.62				5.71				2.5			U	6.09			
	BARIUM	220				289				412				212				257				227			
	BERYLLIUM	1.11				1.17				1.71				0.945				1.11				1.05			
	CADMIUM	1.2		U		1.2		U		1.2		U		1.2		U		1.2		U		1.2		U	
	CALCIUM	47,400				46,300				49,500				34,800				47,800				35,700			
	CHROMIUM	23.2				23.3				34.3				22.1				22.8				22.4			
	COBALT	6.53				8.22				11.2				7.62				8.49				7.6			
	COPPER	20.8				21.6				26.6				26.4				21.5				21			
	IRON	23,200				25,600				35,000				21,400				24,800				24,300			
	LEAD	22.5				20.2				25.5				36.3				19.2				21			
	MAGNESIUM	14,600				16,300				21,300				13,800				16,000				15,500			
	MANGANESE	589				649				732				637				611				646			
	MERCURY	0.05		U		0.05		U		0.05		U		0.05		U		0.05		U		0.05		U	
	NICKEL	16.5		J		18.3		J		24.2		J		15.8		J		17.2		J		16.7		J	
	POTASSIUM	9,250				10,700				15,700				9,300				10,900				11,100			
	SODIUM	657				731				961				780				912				1,240			
	THALLIUM	34.3		UJ		35.8		J		34.3		UJ		38.2		J		34.3		UJ		34.3		UJ	
	VANADIUM	27.8				27.4				39.9				27.8				28				26			
	ZINC	73				78.4				99.9				70				72.2				73.4			
	BENZYL ALCOHOL	0.032		U		0.032		U		0.032		U		0.032				0.032		U		0.032		U	
SEMIVOLATILES																									

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Northwest Trench - Surface Soil (Continued)

Group	Analytes	CRP-94-11A		CRP-94-12A		CRS-94-01		CRS-94-02		CRS-94-03	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
METALS	ALUMINUM	819	U	819	U	12600		23100		13600	
	ARSENIC	2.5	U	9.49		4.79		7.09		4.95	
	BARIUM	8.76	U	8.76	U	107		189		130	
	BERYLLIUM	0.427	U	0.427	U	0.631		1.15		0.427	U
	CADMIUM	1.2	U	4.94		1.2	U	1.2	U	1.2	U
	CALCIUM	100,000		4,900		7,030		29,700		10,400	
	CHROMIUM	1.28		5.41		15		25.1		14.5	
	COBALT	2.5	U	2.66		5.23		8.45		5.56	
	COPPER	4.03		10.1		15.3		20.8		21.5	
	IRON	1,360	U	1,360	U	14,700		21,700		15,100	
	LEAD	7.44	U	10.8		16.6		19.7		30.4	
	MAGNESIUM	901		172	U	5,100		12,200		6,980	
	MANGANESE	25.9	U	25.9	U	318		514		382	
	MERCURY	0.05	U	0.0897		0.0534		0.05	U	0.05	U
	NICKEL	4.53	J	5.81	J	8.99		15		8.96	
	POTASSIUM	218	U	218	U	3,370		7,220		3,860	
	SODIUM	56.6		75.6		326		501		514	
	THALLIUM	34.3	UJ	37.3	J	34.3	U	34.3	U	34.3	U
	VANADIUM	2.41	U	2.41	U	19		31.2		19.1	
	ZINC	11.1		811		43.1		67.8		49.4	
SEMIVOLATILES	BENZYL ALCOHOL	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Northwest Trench - Subsurface Soil

Group	Analytes	CRP-94-06B 5 ft	CRP-94-06C 10 ft	CRP-94-07B 5 ft	CRP-94-07C 10 ft	CRP-94-08B 5 ft	CRP-94-08C 10 ft
METALS	ALUMINUM	40,100	6,110	42,400	11,200	40,100	819 U
	ARSENIC	11.3	5.11	11.6	2.5	9.82	3.78
	BARIUM	245	60	265	78.4	239	8.76 U
	BERYLLIUM	1.79	0.604	1.77	0.541	1.64	0.765
	CALCIUM	34,300	85,000	38,300	4,000	40,300	140,000
	CHROMIUM	38.3	7.5	37.9	12.9	36.2	3.5
	COBALT	9.72	4.21	11.1	5.44	10.3	5.13
	COPPER	22.4	3.6	24.2	7.87	23.2	11.9
	IRON	35,900	7,000	36,500	13,100	34,600	1,360 U
	LEAD	19.7	10.9	21.9	10.7	19.1	7.44 U
	MAGNESIUM	12,700	4,970	13,700	3,250	13,300	1,920
	MANGANESE	513	25.9	545	250	531	25.9 U
	MERCURY	0.05	0.119	0.05	0.0595	0.05	0.05 U
	NICKEL	27	5.08	26.8	11.7	25.2	13.6 J
	POTASSIUM	9,440	218	10,600	1,880	10,500	218 U
	SODIUM	6,140	1,950	6,800	2,750	6,840	1,420
	THALLIUM	34.3	34.3	34.3	34.3	55.3	34.3 UJ
	VANADIUM	49.4	2.41	48.5	16.2	47.8	2.41 U
	ZINC	85.1	15.2	89.3	36.9	84.1	8.84
	SEMIVOLATILES	0.032	0.032	0.032	0.032	0.032	0.032 U
	BENZYL ALCOHOL	U	U	U	U	U	U

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Northwest Trench - Subsurface Soil (continued)

Group	Analytes	CRP-94-09B 5 ft	CRP-94-09B 5 ft (dup)	CRP-94-09C 10 ft	CRP-94-09C 10 ft (dup)	CRP-94-10B 5 ft	CRP-94-10C 10 ft
METALS	ALUMINUM	36,900	35,100	29,400	31,000	13,800	11,200
	ARSENIC	9.39	9.16	8.62	8.55	9.44	3.74
	BARIUM	211	236	215	196	80.8	112
	BERYLLIUM	1.55	1.41	1.27	1.38	0.637	1.03
	CALCIUM	45,000	31,500	31,800	27,000	18,600	77,000
	CHROMIUM	33.2	32.3	29.9	29.5	13.5	11.5
	COBALT	10	9.19	8.92	9.6	5.87	3.81
	COPPER	22.7	21.2	19.7	21.7	9.11	9.06
	IRON	32,900	30,400	29,400	31,500	14,200	11,400
	LEAD	18.4	11.7	13.8	15.5	9.51	13.4
	MAGNESIUM	14,000	13,300	10,400	11,300	5,150	4,290
	MANGANESE	530	526	490	557	215	173
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	24	21.8	23.4	22.6	11.3	7.72
	POTASSIUM	10,200	9,640	6,020	6,790	3,310	2,400
	SODIUM	5,680	5,250	5,230	5,760	2,440	2,590
	THALLIUM	45.7	34.3	50.1	34.3	34.3	34.3
	VANADIUM	43.4	42.3	36.7	38.2	18.5	2.41
	ZINC	83	77.8	73.8	85	31.8	38.3
	BENZYL ALCOHOL	0.049	0.032	0.061	0.056	0.032	0.054
SEMIVOLATILES							

Summary of Analytes Detected in Soil for the Chemical Range (SWMU 07)

Northwest Trench - Subsurface Soil (continued)

Group	Analytes	CRP-94-11B				CRP-94-11C				CRP-94-12B				CRP-94-12C			
		5 ft				9 ft				5 ft				10 ft			
METALS	ALUMINUM	819	U			819	U			819	U			819	U		
	ARSENIC	2.5	U			2.5	U			2.5	U			2.5	U		
	BARIUM	8.76	U			8.76	U			8.76	U			8.76	U		
	BERYLLIUM	0.427	U			0.427	U			0.427	U			0.427	U		
	CALCIUM	65,000				20,800				38,000				41,600			
	CHROMIUM	3.72				2.91				2.52				3.67			
	COBALT	3.66				2.5	U			2.5	U			2.5	U		
	COPPER	12.9				4.66				2.84	U			3.4			
	IRON	1,360	U			1,360	U			1,360	U			1,360	U		
	LEAD	9.24				7.44	U			7.44	U			7.44	U		
	MAGNESIUM	1,990				2,150				1,440				2,380			
	MANGANESE	158				25.9	U			25.9	U			25.9	U		
	MERCURY	0.05	U			0.05	U			0.05	U			0.05	U		
	NICKEL	4.61	J			3.5	J			2.74	U			3.84	J		
	POTASSIUM	218	U			218	U			218	U			218	U		
	SODIUM	69.1				78.4				49.6				88.1			
	THALLIUM	48.7	J			34.3	UJ			37.4	J			45.7	J		
	VANADIUM	2.41	U			2.41	U			2.41	U			2.41	U		
	ZINC	33.5				12.4				31.7				14.6			
	BENZYL ALCOHOL	0.032	U			0.041				0.032	U			0.032	U		

SEMIVOLATILES

All values are in µg/g (equal to ppm)
 NA = Not analyzed
 U = Not detected; value is the Certified Reporting Limit.
 Dup = Duplicate analysis
 J = Value is estimated.

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Bullet Stops - Surface Soil

Group	Analytes	SAS-92-01		SAS-92-02		SAS-92-03		SAS-92-04		SAB-94-01A		SAB-94-02A	
		0 ft		0 ft		0 ft		0 ft		0.5 ft		0.5 ft	
METALS	ALUMINUM	14000	13100	15100	19200	10700	10100						
	ANTIMONY	19.6	19.6	19.6	19.6	19.6	143			U			
	ARSENIC	5.72	7.34	10.8	8.47	7.41	27						
	BARIUM	183	199	185	185	129	119						
	BERYLLIUM	0.571	0.495	0.542	0.597	0.581	0.548						
	BORON	10.8	9.79	10.5	19.3	NA	NA						
	CALCIUM	84000	47300	35,200	31,200	40,000	36,800						
	CHROMIUM	16	14.6	18.1	22.3	12.9	13						
	COBALT	4.91	6.28	6.22	6.4	5.29	4.35						
	COPPER	18.8	14.6	13.1	17.8	10.7	1700						
	IRON	15300	17100	18500	20200	15900	13700						
	LEAD	190	480	31	28	12.9	33000						
	MAGNESIUM	8720	10100	9000	10800	9880	8860						
	MANGANESE	307	308	441	405	317	267						
	MERCURY	0.05	0.05	0.05	0.05	0.0518	0.05						U
	NICKEL	13.8	14.2	16.6	15.6	12.3	10.9						
	POTASSIUM	2690	2710	3990	5050	1710	1790						
	SILVER	1	1	1	1	1	1			U			
	SODIUM	247	289	275	358	310	291						
	VANADIUM	21.4	20.8	26	30	20	18						
	ZINC	52.9	53.9	62.4	71.7	42.7	213						

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Bullet Stops - Surface Soil (continued)

Group	Analytes	SAB-94-03A 0.5 ft	SAB-94-04A 0.5 ft	SAB-94-05A 0.5 ft	SAB-94-06A 0.5 ft	SAB-94-07A 0.5 ft	SAB-94-08A 0.5 ft
METALS	ALUMINUM	9950	6130	15200	17300	16200	14700
	ANTIMONY	62.1	19.6	19.6	19.6	19.6	97.2
	ARSENIC	13.9	7.72	7.1	8.9	8.81	12.5
	BARIUM	120	75.3	203	215	180	192
	BERYLLIUM	0.517	0.427	0.85	0.835	0.839	0.792
	BORON	NA	NA	NA	NA	NA	NA
	CALCIUM	34,800	27,800	45,900	45,900	62,000	44,900
	CHROMIUM	12.6	7.99	17.5	20	18.8	17
	COBALT	4.34	4	7.34	6.48	7	6.06
	COPPER	335	29.1	15.6	20.8	178	879
	IRON	13500	10600	20200	19800	19400	18900
	LEAD	15000	788	545	1200	5900	26000
	MAGNESIUM	8100	5390	12200	11500	10900	11500
	MANGANESE	270	167	413	374	374	376
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	11.2	8.47	14.7	15	15.1	15.5
	POTASSIUM	2020	1190	2150	2910	2810	2760
	SILVER	1	1	1	1	1	1
	SODIUM	342	171	382	426	426	459
	VANADIUM	17	10.9	26	27	25	23
	ZINC	82.7	24.5	58.1	62.3	81.8	157

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Bullet Stops - Surface Soil (continued)

Group	Analytes	SAB-94-09A		SAB-94-10A		SAS-94-01		SAS-94-02		SAS-94-03		SAS-94-04	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
METALS	ALUMINUM	6020		4400		12200		5900		11900		15300	
	ANTIMONY	41.2		19.6	U	42.3		19.6	U	19.6	U	19.6	U
	ARSENIC	7.41		5.77		11.9		6.38		6.5		6.55	
	BARIUM	74.5		62.1		133		77.8		152		199	
	BERYLLIUM	0.427	U	0.427	U	0.639		0.427	U	0.687		0.856	
	BORON	NA		NA		NA		NA		NA		NA	
	CALCIUM	25300		30100		42600		31200		43400		44900	
	CHROMIUM	8.2		6.27		15		8.59		16.1		18.3	
	COBALT	3.34		2.5	U	5.99		3.84		6.14		7.71	
	COPPER	89		9.25		243		14.5		15.4		15.6	
	IRON	11600		9100		16700		10500		18000		20300	
	LEAD	7100		117		12000		102		39.1		45.5	
	MAGNESIUM	5430		5560		10400		6440		11900		12000	
	MANGANESE	172		147		312		196		371		405	
	MERCURY	0.0627		0.05	U	0.05	U	0.05	U	0.0537		0.05	U
	NICKEL	7.73		7.18		11.5		7.04		13.9		15.4	
	POTASSIUM	1030		746		2210		1120		2190		2460	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	229		215		188		92.7		183		1030	
	VANADIUM	11.4		1.86	U	20		2.71	U	21.6		24.3	
	ZINC	34		19.7		73.6		26.9		56.1		64.5	

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Bullet Stops - Surface Soil (continued)

Group	Analytes	SAS-94-04 0.5 ft (dup)	SAS-94-05 0.5 ft	SAS-94-06 0.5 ft	SAS-94-07 0.5 ft	SAS-94-08 0.5 ft
METALS	ALUMINUM	19000	17000	23000	26600	17600
	ANTIMONY	19.6	19.6	19.6	19.6	19.6
	ARSENIC	6.9	7.51	6.53	6.89	6.91
	BARIUM	201	209	250	293	215
	BERYLLIUM	0.917	0.941	1.07	1.27	0.962
	BORON	NA	NA	NA	NA	NA
	CALCIUM	43800	45700	45400	38100	48700
	CHROMIUM	22.1	19.3	25.3	28.3	20.6
	COBALT	7.98	7.91	8.64	10.2	8.26
	COPPER	16.5	16.7	18.4	28.9	16.8
	IRON	21700	21800	24100	26900	22000
	LEAD	71.6	204	60.5	205	51.3
	MAGNESIUM	12200	12500	13600	13400	13200
	MANGANESE	405	438	434	625	438
	MERCURY	0.05	0.05	0.05	0.05	0.05
	NICKEL	16.3	17.2	18.8	20.2	16.8
	POTASSIUM	3030	2730	3810	3940	2830
	SILVER	0.803	0.803	0.803	0.803	0.803
	SODIUM	1090	552	572	857	523
	VANADIUM	29	25.3	32.8	35.2	27
	ZINC	67.1	70.7	78	89.4	71.4

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Bullet Stops - Subsurface Soil

Group	Analytes	SAB-94-01B			SAB-94-02B			SAB-94-03B			SAB-94-04B			SAB-94-05B			SAB-94-06B		
		3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft
METALS	ALUMINUM	18100	15200	18800	18800	18800	18800	18800	18100	18100	18100	18100	18100	18900	18900	18900	19600	19600	19600
	ANTIMONY	19.6	19.6	U	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
	ARSENIC	6.33	8.12	7.99	7.99	7.99	7.99	7.99	7.34	7.34	7.34	7.34	7.34	8.12	8.12	8.12	6.68	6.68	6.68
	BARIUM	172	199	229	229	229	229	229	211	211	211	211	211	189	189	189	252	252	252
	BERYLLIUM	0.875	0.828	0.933	0.933	0.933	0.933	0.933	0.882	0.882	0.882	0.882	0.882	0.964	0.964	0.964	1.01	1.01	1.01
	CALCIUM	53800	49900	55900	55900	55900	55900	55900	51100	51100	51100	51100	51100	54400	54400	54400	53900	53900	53900
	CHROMIUM	20.1	19	22.2	22.2	22.2	22.2	22.2	21.8	21.8	21.8	21.8	21.8	28.6	28.6	28.6	22.1	22.1	22.1
	COBALT	7.74	6.75	7.45	7.45	7.45	7.45	7.45	7.34	7.34	7.34	7.34	7.34	8.62	8.62	8.62	8.19	8.19	8.19
	COPPER	14.2	70.4	20.3	20.3	20.3	20.3	20.3	18.1	18.1	18.1	18.1	18.1	14.7	14.7	14.7	16.9	16.9	16.9
	IRON	21400	19500	21800	21800	21800	21800	21800	21000	21000	21000	21000	21000	25400	25400	25400	23600	23600	23600
	LEAD	16.7	1500	496	496	496	496	496	45.1	45.1	45.1	45.1	45.1	20.3	20.3	20.3	22.9	22.9	22.9
	MAGNESIUM	13500	11800	13100	13100	13100	13100	13100	12900	12900	12900	12900	12900	14500	14500	14500	13400	13400	13400
	MANGANESE	439	393	379	379	379	379	379	420	420	420	420	420	422	422	422	461	461	461
	MERCURY	0.0587	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	15	16.6	17.8	17.8	17.8	17.8	17.8	17.6	17.6	17.6	17.6	17.6	20.1	20.1	20.1	17.7	17.7	17.7
	POTASSIUM	2590	2730	3570	3570	3570	3570	3570	4290	4290	4290	4290	4290	2300	2300	2300	3450	3450	3450
	SODIUM	799	439	885	885	885	885	885	683	683	683	683	683	554	554	554	968	968	968
	VANADIUM	31	25	29.7	29.7	29.7	29.7	29.7	27.2	27.2	27.2	27.2	27.2	41.4	41.4	41.4	31.3	31.3	31.3
	ZINC	60.9	71.3	71.1	71.1	71.1	71.1	71.1	77.3	77.3	77.3	77.3	77.3	71	71	71	77.5	77.5	77.5

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Bullet Stops - Subsurface Soil (continued)

Group	Analytes	SAB-94-07B			SAB-94-08B			SAB-94-09B			SAB-94-10B		
		3 ft			3 ft			3 ft			3 ft		
METALS	ALUMINUM	18900			20600			13000			17300		
	ANTIMONY	19.6	U		19.6	U		19.6	U		19.6	U	
	ARSENIC	6.13			7.06			6.54			8.47		
	BARIUM	240			229			144			229		
	BERYLLIUM	0.972			1.01			0.67			0.932		
	CALCIUM	46300			55100			38000			52700		
	CHROMIUM	20.7			23.5			14.3			20.5		
	COBALT	7.96			7.91			5.27			8.02		
	COPPER	15.1			19.1			11.5			17.8		
	IRON	22300			23100			15500			21700		
	LEAD	20.9			127			78.9			23.1		
	MAGNESIUM	13500			12700			8260			12900		
	MANGANESE	379			394			257			471		
	MERCURY	0.05	U		0.05	U		0.0637			0.05	U	
	NICKEL	17.1			18.2			11.9			18.1		
	POTASSIUM	2750			3820			2260			4070		
	SODIUM	1110			1150			674			1130		
	VANADIUM	28.7			32			18.4			26.3		
	ZINC	68			76.5			50.9			82.5		

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Firing Lines - Surface Soil

Group	Analytes	SAB-94-11	SAB-94-12	SAB-94-13	SAB-94-14	SAB-94-15	SAS-94-09
		0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft
METALS	ALUMINUM	12400	16200	20400	20000	18700	20600
	ARSENIC	5.37	6.41	9.07	6.65	6.03	6.56
	BARIUM	156	161	295	227	205	222
	BERYLLIUM	0.701	0.963	1.14	0.922	0.969	0.961
	CALCIUM	38400	28000	45400	43000	47600	46700
	CHROMIUM	15.4	19.5	23.4	25.5	23.3	23.7
	COBALT	5.62	7.93	10.2	7.47	7.98	7.93
	COPPER	11.6	19	19.7	16.2	16.5	16
	IRON	18000	21800	27400	22700	23100	23000
	LEAD	18.8	33.8	25.5	19.1	19.2	20.1
	MAGNESIUM	11500	10700	13600	12200	13200	12900
	MANGANESE	409	384	661	398	393	436
	MERCURY	0.05	0.0684	0.05	0.05	0.05	0.05
	NICKEL	13	18.4	24	18.2	18.2	17
	POTASSIUM	1910	2890	3220	4300	3850	3170
	SODIUM	407	496	513	428	503	454
	VANADIUM	21.1	24.8	31.6	33.6	32.6	32.1
	ZINC	51.9	73	93.6	74.4	75.7	71.1

Firing Lines - Surface Soil (continued)

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Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Firing Lines - Surface Soil (continued)

Group	Analytes	SAS-94-20
		0.5 ft
METALS	ALUMINUM	16200
	ARSENIC	7.01
	BARIUM	199
	BERYLLIUM	0.861
	CALCIUM	49400
	CHROMIUM	20.3
	COBALT	7.36
	COPPER	20.7
	IRON	20600
	LEAD	17
	MAGNESIUM	11900
	MANGANESE	394
	MERCURY	0.05
	NICKEL	15.9
	POTASSIUM	4750
	SODIUM	266
	VANADIUM	25.5
	ZINC	73.4
		U

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Firing Lines - Subsurface Soil

Group	Analytes		SAB-94-11B	SAB-94-12B	SAB-94-13B	SAB-94-14B	SAB-94-15B
			3 ft	3 ft	3 ft	3 ft	3 ft
METALS	ALUMINUM		8400	15100	18300	21900	17700
	ARSENIC		5.52	7.11	9.87	6.03	6.37
	BARIUM		82.1	163	168	197	195
	BERYLLIUM		0.427	U	0.902	0.944	1.07
	CALCIUM		21400	42800	50800	40100	40800
	CHROMIUM		13.2	18.6	22.6	40.2	23.3
	COBALT		4.56	7.69	7.61	8.06	7.17
	COPPER		9.21	13.5	14.5	17	15.9
	IRON		13800	20700	22200	22900	21100
	LEAD		12.3	15.9	15.7	18.6	19.3
	MAGNESIUM		9040	12100	13000	12200	11400
	MANGANESE		428	340	453	415	396
	NICKEL		11.6	17.4	16.2	23.2	17.5
	POTASSIUM		1290	2250	2220	4290	3350
	SELENIUM		0.449	U	1.93	0.449	U
	SODIUM		278	694	781	839	793
	VANADIUM		20.6	25.6	34.3	36.9	29.2
	ZINC		40.5	67.4	55.8	75	71.6

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Area Between Firing Lines - Surface Soil

Group	Analytes	SAS-94-12	SAS-94-13	SAS-94-14	SAS-94-15	SAS-94-16	SAS-94-17
		0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft
METALS	ALUMINUM	18900	11200	18000	9980	17600	16000
	ARSENIC	6.35	7.5	10.1	7.74	9.65	6.71
	BARIUM	234	155	193	150	200	175
	BERYLLIUM	0.938	0.597	0.877	0.591	0.887	0.771
	CALCIUM	49400	52700	26900	59000	42000	28300
	CHROMIUM	20.9	16.1	23	14.8	22.9	20.9
	COBALT	8.86	6	8	6	8.11	7
	COPPER	16.4	14.4	19.1	15.3	18.7	21.6
	IRON	22400	18200	22600	17300	22100	20300
	LEAD	21.7	49.9	25.7	55.5	20.9	20.4
	MAGNESIUM	13700	12900	11100	11800	13200	13500
	MANGANESE	341	365	513	371	446	527
	MERCURY	0.05	0.0536	0.05	0.05	0.05	0.05
	NICKEL	17.5	13.8	18.7	14.1	17.8	13.7
	POTASSIUM	3720	2140	4370	2260	4330	5090
	SODIUM	331	223	272	191	277	309
	VANADIUM	26.6	23.3	30.4	21.3	28	26.7
	ZINC	76.5	60	88.6	58.3	86.8	87

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Drainage Area - Surface Soil

Group	Analytes	SAB-95-01A 0.5 ft	SAB-95-02A 0.5 ft	SAB-95-03A 0.5 ft	SAB-95-04A 0.5 ft	SAB-95-05A 0.5 ft	SAB-95-06A 0.5 ft
METALS	ALUMINUM	14100	20500	20200	22100	19500	17500
	ARSENIC	8.63	6.13	9.4	8.75	9.26	10.1
	BARIUM	160	248	220	224	216	242
	BERYLLIUM	0.613	0.915	0.963	1.01	0.871	0.846
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	31600	53000	36700	38100	42000	37500
	CHROMIUM	19.8	23.5	24.1	26.4	24.4	24.5
	COBALT	6.29	7.32	7.66	8.45	7.92	7.79
	COPPER	15	17	20.9	20.1	18.1	17.9
	IRON	17800	21100	22800	23800	22100	21100
	LEAD	21.5	17.5	22.3	19.6	23.3	17.5
	MAGNESIUM	10400	14100	13200	14000	11900	11600
	MANGANESE	370	524	478	528	438	445
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	14.2	16.9	18.2	18.9	18.5	18.6
	POTASSIUM	3560	5550	5370	6060	4310	4750
	SELENIUM	0.449	0.449	0.449	0.449	0.449	0.449
	SODIUM	526	573	514	592	576	573
	VANADIUM	28.8	32.1	33.8	35.7	35.1	33
	ZINC	67.1	84.7	89.5	95.7	81.5	85.1

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Drainage Area - Surface Soil (continued)

Group	Analytes	SAB-95-07A 0.5 ft	SAB-95-08A 0.5 ft	SAB-95-09A 0.5 ft	SAB-95-10A 0.5 ft	SAB-95-10A 0.5 ft (dup)	SAS-95-01 0.5 ft
METALS	ALUMINUM	19400	21700	15300	11800	12400	21000
	ARSENIC	6.34	6.66	7.96	7.87	7.64	8.66
	BARIUM	216	217	180	146	147	238
	BERYLLIUM	0.845	0.97	0.805	0.556	0.524	0.976
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	43100	40900	34200	34800	36200	47300
	CHROMIUM	23.6	25.5	19.5	20.3	21.5	24.7
	COBALT	7.01	7.91	7.56	5.03	5.35	7.94
	COPPER	17.6	18.9	16.9	13	12.8	20.8
	IRON	21400	22600	19700	17400	17500	22600
	LEAD	20	17	19.2	16.4	13	45.4
	MAGNESIUM	12400	13400	11500	9530	9910	13700
	MANGANESE	429	440	426	326	325	523
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	17.9	18.5	17.4	12.6	12	19.2
	POTASSIUM	4690	6260	3920	2710	2810	5490
	SELENIUM	0.449	0.449	0.449	0.449	0.449	0.449
	SODIUM	545	571	499	482	468	629
	VANADIUM	32.9	33.9	28.3	30.7	32.3	34.6
	ZINC	81	87	77.1	55.6	58.3	88

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Drainage Area - Surface Soil (continued)

Group	Analytes	SAS-95-02 0.5 ft	SAS-95-03 0.5 ft	SAS-95-04 0.5 ft	SAS-95-05 0.5 ft	SAS-95-06 0.5 ft	SAS-95-07 0.5 ft
METALS	ALUMINUM	20200	20500	28800	15500	20000	23000
	ARSENIC	6.8	9.75	9.5	7.55	6.98	6.45
	BARIUM	241	225	365	176	226	242
	BERYLLIUM	0.94	0.96	1.3	0.728	0.958	1.14
	CADMIUM	1.2	1.43	1.2	1.2	1.2	1.42
	CALCIUM	48000	40500	50200	31300	38500	34500
	CHROMIUM	23.6	25.1	27.7	20.5	24.7	27.3
	COBALT	8.11	8.03	10.1	7.12	8.39	8.52
	COPPER	19.3	20.9	22.4	19	22.8	23.9
	IRON	22700	22600	28000	19700	22800	26000
	LEAD	19	23.2	25.6	30.3	28.6	25
	MAGNESIUM	13700	14000	13300	10900	11700	13400
	MANGANESE	505	516	526	406	503	544
	MERCURY	0.05	0.05	0.05	0.0574	0.05	0.0565
	NICKEL	18.2	18.2	21.6	15	21.5	22.5
	POTASSIUM	5530	5390	4400	3680	4610	5710
	SELENIUM	0.449	0.449	0.449	0.449	0.449	0.449
	SODIUM	591	554	2250	547	501	495
	VANADIUM	32.8	34.3	37.3	30.1	34	37.7
	ZINC	87.8	93.8	85.9	75.6	87	109

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Drainage Area - Surface Soil (continued)

Group	Analytes	SAS-95-08		SAS-95-09		SAS-95-10		SAS-95-10	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft (dup)	
METALS	ALUMINUM	16400		16400		12800		16400	
	ARSENIC	9.16		9.07		6.77		6.77	
	BARIUM	203		207		143		178	
	BERYLLIUM	0.761		0.788		0.427	U	0.732	
	CADMIUM	1.2	U	1.2	U	1.2	U	1.2	U
	CALCIUM	35200		42600		26000		32800	
	CHROMIUM	20.6		20.5		18.3		22.4	
	COBALT	6.98		7.79		5.49		6.26	
	COPPER	18.3		17.4		14.5		17.6	
	IRON	20500		20300		16100		19900	
	LEAD	24.8		23.1		17.6		20.9	
	MAGNESIUM	11100		11500		9410		11600	
	MANGANESE	448		437		333		404	
	MERCURY	0.05	U	0.0519	J	0.05	U	0.05	U
	NICKEL	16.7		17.6		11.7		15.3	
	POTASSIUM	4230		3910		3310		4100	
	SELENIUM	0.449	UJ	0.449	UJ	0.449	UJ	0.493	
	SODIUM	463		497		476		563	
	VANADIUM	29.3		29.5		27.3		33.5	
	ZINC	80		74.2		58.5		73.9	

Table ____ . Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Drainage Area - Subsurface Soil

Group	Analytes	SAB-95-01B 3 ft	SAB-95-02B 3 ft	SAB-95-03B 3 ft	SAB-95-04B 3 ft	SAB-95-05B 3 ft	SAB-95-06B 3 ft
METALS	ALUMINUM	5980	18500	22100	24700	19700	6830
	ARSENIC	4.47	6.38	7.99	8.09	6.71	5
	BARIUM	67	165	266	241	228	64.4
	BERYLLIUM	0.427	0.691	0.978	1.12	0.961	0.427
	CALCIUM	26600	49100	53300	38000	48300	25200
	CHROMIUM	9.12	20.1	24.9	28.9	23.5	13
	COBALT	2.89	6.64	8.47	8.31	8.2	2.94
	COPPER	6.79	14	16.3	21.4	18.4	6.66
	IRON	10000	23900	23300	25400	22100	10700
	LEAD	7.44	26	16.8	18.7	24.6	7.44
	MAGNESIUM	6010	11900	14000	14500	12600	5350
	MANGANESE	29.6	363	453	560	481	29.6
	MERCURY	0.05	0.05	0.05	0.0611	0.05	0.05
	NICKEL	7.66	17.8	17.1	20.4	20.3	8.06
	POTASSIUM	283	3510	3240	6680	4660	283
	SODIUM	519	672	1590	663	501	576
	VANADIUM	15.7	32.7	36.7	40.4	32.6	19.7
	ZINC	27.9	75.4	71.8	101	84.8	28.7

Summary of Analytes Detected in Soil for the Small Arms Firing Range (SWMU 8)

Drainage Area - Subsurface Soil

Group	Analytes	SAB-95-07B 3 ft	SAB-95-08B 3 ft	SAB-95-09B 3 ft	SAB-95-10B 3 ft	SAB-95-10B 3 ft (dup)
METALS	ALUMINUM	14100	20200	17300	10900	11900
	ARSENIC	3.51	5.86	2.5	5.33	6.02
	BARIUM	162	231	234	144	152
	BERYLLIUM	0.616	0.966	0.735	0.427	0.541
	CALCIUM	33500	62000	39100	70000	32800
	CHROMIUM	20.5	23.3	18.2	18.3	20.6
	COBALT	6.15	8.5	6.57	5.42	7.02
	COPPER	12.6	16.5	12.7	11.4	12.4
	IRON	18700	22600	17900	15600	16600
	LEAD	15.7	18.5	12.7	14.7	14.9
	MAGNESIUM	9630	13100	10200	9330	8950
	MANGANESE	380	381	271	298	301
	MERCURY	0.05	0.0824	0.05	0.05	0.05
	NICKEL	16	17.5	13.3	12.5	12.8
	POTASSIUM	2540	3480	3250	2680	2820
	SODIUM	1030	1970	1680	463	492
	VANADIUM	24.4	34.9	25.1	27.4	28.8
	ZINC	52.5	76.4	56	56.2	55.4

All values are in $\mu\text{g/g}$ (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit.

Dup = Duplicate analysis

J = Value is estimated

Summary of Analytes Detected in Soil for the Tire Disposal Area (SWMU 13)

Surface Soil

Group	Analytes	TDP-94-01A 0.5 ft	TDP-94-02A 0.5 ft	TDP-94-03A 0.5 ft	TDP-94-04A 0.5 ft	TDP-94-05A 0.5 ft	TDP-94-06A 0.5 ft
METALS	ALUMINUM	647	U	8,600	12,600	7,540	779
	ARSENIC	6.93	4.25	4.84	6.1	4.03	2.5
	BARIUM	42.2	54.9	74.8	84.7	73.2	7.32
	BERYLLIUM	0.427	U	0.427	0.518	0.427	0.427
	CALCIUM	30,100	35,200	46,900	70,000	52,600	43,000
	CHROMIUM	4.91	5.95	11.6	26.5	14.5	3.41
	COBALT	2.5	2.5	3.43	4.74	3.33	2.5
	COPPER	3.38	4.17	7.77	20	9.05	3.72
	IRON	985	5,310	9,340	13,300	9,070	5,580
	LEAD	14.7	10	7.44	23	11.7	7.44
	MAGNESIUM	3,540	4,110	4,750	7,690	8,460	3,670
	MANGANESE	20.8	121	170	200	204	17.5
	MERCURY	0.05	0.05	0.05	0.0563	0.05	0.05
	NICKEL	2.74	2.74	5.33	9.16	6.32	3.55
	POTASSIUM	878	1,160	2,520	3,340	1,910	184
	SODIUM	199	192	263	256	258	70.2
	VANADIUM	1.56	1.56	15.7	21.6	15.9	1.56
	ZINC	25	21.8	29.2	49.9	36.4	13.5
	BIS (2-ETHYLHEXYL) PHTHALATE	0.48	U	0.48	U	0.48	0.48
	CHRYSENE	0.088	0.032	0.032	0.032	0.032	0.032
VOLATILES	FLUORANTHENE	0.091	0.053	0.032	0.032	0.032	0.032
	PHENANTHRENE	0.074	0.032	0.032	0.032	0.032	0.032
	1,1,1-TRICHLOROETHANE	0.21	0.2	0.2	0.2	0.2	0.2
	1,3-DICHLOROBENZENE	0.14	0.14	0.14	0.14	0.14	0.14
	CHLOROMETHANE	0.96	0.96	0.96	0.96	0.96	0.96
	DICHLOROBENZENE - NONSPEC	0.2	0.2	0.2	0.2	0.2	0.2

Summary of Analytes Detected in Soil for the Tire Disposal Area (SWMU 13)

Surface Soil (continued)

Group	Analytes	TDP-94-07A 0.5 ft	TDP-94-08A 0.5 ft	TDP-94-09A 0.5 ft	TDP-94-09A 0.5 ft (dup)	TDP-94-10A 0.5 ft	TDP-94-11A 0.5 ft
METALS	ALUMINUM	6,940	1,170	1,170	U	1,170	1,170
	ARSENIC	2.75	2.81	2.81	779	4	3.06
	BARIUM	54.6	10.5	10.5	2.53	10.5	10.5
	BERYLLIUM	0.427	U	U	7.32	U	U
	CALCIUM	32,000	0.427	0.427	U	0.427	0.427
	CHROMIUM	8.61	43,900	24,700	25,300	30,600	32,700
	COBALT	3.5	4.85	4.82	6.03	7.21	3.22
	COPPER	6.39	2.5	2.5	U	2.5	2.5
	IRON	9,060	6.08	6.81	5.31	9.05	8.91
	LEAD	7.78	1,610	1,610	4,870	1,610	1,610
	MAGNESIUM	4,440	7.44	7.44	7.44	10.6	9.24
	MANGANESE	160	3,970	2,630	2,330	3,740	4,400
	MERCURY	0.05	31.5	31.5	17.5	31.5	31.5
	NICKEL	5.53	0.05	0.0691	0.05	0.05	0.05
	POTASSIUM	1,650	7.84	7.84	2.74	7.84	7.84
	SODIUM	154	239	239	184	239	239
	VANADIUM	12.2	112	72.1	134	119	71.4
	ZINC	26.8	2.93	2.93	1.56	2.93	2.93
	BIS (2-ETHYLHEXYL) PHTHALATE	0.48	31.7	2.8	13.9	18.7	59.3
	CHRYSENE	0.032	20	0.48	0.48	0.48	20
VOLATILES	FLUORANTHENE	0.032	U	0.032	U	0.032	0.3
	PHENANTHRENE	0.032	U	0.032	U	0.032	0.3
	1,1,1-TRICHLOROETHANE	0.2	U	0.032	U	0.032	0.3
	1,3-DICHLOROBENZENE	0.14	U	0.2	U	0.2	0.2
	CHLOROMETHANE	0.96	U	0.14	U	0.14	0.14
	DICHLOROBENZENE - NONSPEC	0.2	U	0.96	U	0.96	0.96
			0.2	0.2	U	0.2	0.2
			U	U	U	U	U

Summary of Analytes Detected in Soil for the Tire Disposal Area (SWMU 13)

Surface Soil (continued)

Group	Analytes	TDP-94-12A 0.5 ft	TDP-94-13A 0.5 ft	TDP-94-14A 0.5 ft	TDP-94-15A 0.5 ft
METALS	ALUMINUM	6,770	8,180	9,960	779 U
	ARSENIC	3.95	3.88	4.76	2.5 U
	BARIUM	54.5	59.3	80.1	7.32 U
	BERYLLIUM	0.427 U	0.427 U	0.427 U	0.427 U
	CALCIUM	35,400	31,400	29,400	30,500
	CHROMIUM	7.61	10.9	11.9	5.82
	COBALT	2.5 U	3.39	3.65	2.5 U
	COPPER	12.4	8.6	8.3	6.71
	IRON	1,610 U	9,770	10,700	5,710
	LEAD	7.98	10.4	8.45	10.2
	MAGNESIUM	4,250	4,420	5,040	3,570
	MANGANESE	31.5 U	147	209	105
	MERCURY	0.0579 J	0.05 U	0.0573 J	0.05 U
	NICKEL	7.84 U	6.08	5.98	3.87
	POTASSIUM	1,560	2,050	2,310	184 U
	SODIUM	131	165	208	120
	VANADIUM	2.93 U	14.1	15.7	1.56 U
	ZINC	30.1	37.2	38	21.7
	BIS (2-ETHYLHEXYL) PHTHALATE	0.48 U	0.48 U	0.48 U	0.48 U
	CHRYSENE	0.032 U	0.032 U	0.032 U	0.032 U
VOLATILES	FLUORANTHENE	0.032 U	0.032 U	0.032 U	0.032 U
	PHENANTHRENE	0.032 U	0.032 U	0.032 U	0.032 U
	1,1,1-TRICHLOROETHANE	0.2 U	0.2 U	0.2 U	0.2 U
	1,3-DICHLOROBENZENE	0.14 U	0.16	0.14 U	0.14 U
	CHLOROMETHANE	0.96 U	0.7	0.96 U	0.96 U
	DICHLOROBENZENE - NONSPEC	0.2 U	3.3	0.2 U	0.2 U

Summary of Analytes Detected in Soil for the Tire Disposal Area (SWMU 13)

Subsurface Soil

Group	Analytes	TDP-94-01B 5 ft	TDP-94-02B 5 ft	TDP-94-03B 5 ft	TDP-94-04B 5 ft	TDP-94-05B 5 ft	TDP-94-06B 5 ft
METALS	ARSENIC	2.5	U	3.04	2.5	U	2.5
	CALCIUM	48,800	2.57	42,600	36,800	U	32,100
	CHROMIUM	2.02	1.99	14.2	4.1	28,300	3.62
	COBALT	2.5	U	2.83	2.5	U	2.5
	COPPER	2.84	U	2.84	2.84	U	2.84
	IRON	985	U	9,110	6,400	4,860	963
	MAGNESIUM	4,490	1,620	4,220	3,860	3,260	2,540
	MANGANESE	20.8	U	104	17.5	U	17.5
	MERCURY	0.05	U	0.05	0.0519	U	0.05
	NICKEL	2.74	U	3.72	5.06	3.73	3.23
	SODIUM	141	232	167	187	138	109
	VANADIUM	1.56	U	22.4	1.56	U	1.56
	ZINC	2.86	U	17.5	12.2	11	7.52
	DIETHYL PHTHALATE	0.24	U	0.24	0.36	U	0.24
SEMIVOLATILES	DI-N-BUTYL PHTHALATE	1.3	U	1.3	1.3	U	1.3

Summary of Analytes Detected in Soil for the Tire Disposal Area (SWMU 13)

Subsurface Soil (continued)

Group	Analytes	TDP-94-07B 5 ft	TDP-94-08B 5 ft	TDP-94-09B 5 ft	TDP-94-09B 5 ft (dup)	TDP-94-10B 5 ft	TDP-94-11B 5 ft
METALS	ARSENIC	2.5	3.87	2.5	2.5	2.5	3.39
	CALCIUM	8,810	33,200	39,700	33,100	32,600	38,500
	CHROMIUM	2.48	3.32	5.52	5	8.72	15.7
	COBALT	2.5	2.5	2.5	2.5	2.5	2.66
	COPPER	2.84	3.19	3.43	2.84	3.78	3.94
	IRON	963	1,610	1,610	963	1,610	9,760
	MAGNESIUM	974	2,840	5,910	3,180	4,560	5,700
	MANGANESE	17.5	31.5	31.5	17.5	31.5	31.5
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	2.74	7.84	7.84	2.74	7.84	7.84
	SODIUM	66.5	74.4	101	201	99	126
	VANADIUM	1.56	2.93	2.93	1.56	2.93	25.2
	ZINC	3.21	2.8	2.8	8.76	2.8	17.2
	DIETHYL PHTHALATE	0.24	0.24	0.24	0.24	0.24	0.24
	DI-N-BUTYL PHTHALATE	1.3	1.3	1.7	1.3	1.3	1.3
SEMIVOLATILES							

Summary of Analytes Detected in Soil for the Tire Disposal Area (SWMU 13)

Subsurface Soil (continued)

Group	Analytes	TDP-94-12B 5 ft	TDP-94-13B 5 ft	TDP-94-14B 5 ft	TDP-94-15B 5 ft
METALS	ARSENIC	2.5	2.5	2.5	3.97
	CALCIUM	11,300	14,200	35,200	37,300
	CHROMIUM	1.38	2.12	9.32	12
	COBALT	2.5	2.5	2.5	3.08
	COPPER	2.84	2.84	2.84	2.84
	IRON	1,610	963	6,910	8,700
	MAGNESIUM	1,710	1,640	4,150	4,120
	MANGANESE	31.5	17.5	17.5	97.4
	MERCURY	0.05	0.05	0.05	0.05
	NICKEL	7.84	2.74	4.08	4.65
	SODIUM	74.5	59.1	167	110
	VANADIUM	2.93	1.56	14.5	18.8
	ZINC	2.8	4.06	13.7	15.4
	DIETHYL PHTHALATE	0.24	60	0.24	0.24
SEMIVOLATILES	DI-N-BUTYL PHTHALATE	1.3	10	1.3	1.3

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit

Dup = Duplicate analysis

J = Value is estimated

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Surface Soil

Group	Analytes	BWS-92-01		BWS-92-02		BWS-92-03		BWS-92-04		BWS-92-05		BWS-92-06	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
CYANIDE ANIONS	CYANIDE	5	U	17.5	U	5	U	5	U	5	U	5	U
	NITRATE	4.08		3.36		3.16		2.79		2.15		2.68	
	NITRITE	3.16	U	4.37		3.16	U	3.16	U	3.16	U	3.16	U
	1,3,5-TRINITROBENZENE	2.96		3.5	U	3.5	U	0.352	U	0.352	U	0.352	U
EXPLOSIVES	2,4-DINITROTOLUENE	0.744	U	74	U	7.4	U	0.744	U	0.744	U	0.744	U
	2,4,6-TRINITROTOLUENE	150		32,000		1,200		45		0.931	U	0.931	U
	HMX	42		58		7.6	U	0.755	U	0.755	U	0.755	U
	RDX	210		1,600		4.4	U	1.19		0.445	U	0.445	U
METALS	ALUMINUM	NA		NA		NA		NA		NA		NA	
	ARSENIC	24	U	240	U	24	U	24	U	24	U	24	U
	BARIUM	68		100		39		48		58		62	
	CADMIUM	4.2	U	4.2	U	0.424	U	0.424	U	0.424	U	0.424	U
	CALCIUM	NA		NA		NA		NA		NA		NA	
	CHROMIUM	74		47.5		7.1		8.76		7.42		7.67	
	COBALT	NA		NA		NA		NA		NA		NA	
	COPPER	38		74		30		11.9		6.54		5.55	
	IRON	46,000		65,000		8,000		8,400		8,900		9,900	
	LEAD	99		100		15		19		10		9.2	
	MAGNESIUM	NA		NA		NA		NA		NA		NA	
	MANGANESE	NA		NA		NA		NA		NA		NA	
	NICKEL	130		19.1		2.46	U	2.46	U	2.46	U	2.46	U
	POTASSIUM	NA		NA		NA		NA		NA		NA	
	SILVER	0.0848		0.16		0.119		0.234		0.0336		0.0335	
	SODIUM	NA		NA		NA		NA		NA		NA	
	VANADIUM	NA		NA		NA		NA		NA		NA	
	ZINC	850		600		47		75		28		28	

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Surface Soil (continued)

Group	Analytes	BWS-92-07 0.5 ft	BWS-92-08 0.5 ft	BWS-92-09 0.5 ft	BWS-92-10 0.5 ft	BWB-94-01A 0.5 ft	BWB-94-02A 0.5 ft
CYANIDE ANIONS	CYANIDE	5	5	5	5	0.25	0.3
	NITRATE	3.88	2.35	2.62	2.56	NA	NA
	NITRITE	3.16	3.16	3.16	3.16	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.352	0.352	0.352	0.352	0.922	2.96
	2,4-DINITROTOLUENE	0.744	0.744	0.744	0.744	2.5	3.53
	2,4,6-TRINITROTOLUENE	0.931	9.11	0.931	0.931	6.4	1500
	HMX	0.755	0.755	0.755	0.755	22.2	4.95
	RDX	0.445	0.445	0.445	0.445	40.6	43.4
METALS	ALUMINUM	NA	NA	NA	NA	7,020	1,220
	ARSENIC	24	24	24	24	4.61	4.58
	BARIUM	55	58	67	70	58.9	10.7
	CADMIUM	0.424	0.424	0.424	0.424	1.2	1.2
	CALCIUM	NA	NA	NA	NA	4510	5160
	CHROMIUM	7.98	8.16	8.63	9.3	17.6	36.2
	COBALT	NA	NA	NA	NA	16.8	2.78
	COPPER	5.78	6.73	5.56	6.05	18.2	7.5
	IRON	6,600	10,000	9,900	11,000	17,900	8,880
	LEAD	20	16	11	13	28.5	43.1
	MAGNESIUM	NA	NA	NA	NA	2180	1410
	MANGANESE	NA	NA	NA	NA	226	28.5
	NICKEL	2.46	2.46	2.46	2.46	10.3	6.93
	POTASSIUM	NA	NA	NA	NA	2930	1190
	SILVER	0.0327	0.0291	0.0336	0.0259	0.803	0.803
	SODIUM	NA	NA	NA	NA	167	97.1
	VANADIUM	NA	NA	NA	NA	3.74	3.74
	ZINC	36	35	31	39	369	92.8

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Surface Soil (continued)

Group	Analytes	BWB-94-03A 0.5 ft	BWS-94-01 .5 ft	BWS-94-02 .5 ft	BWS-94-03 .5 ft	BWS-94-04 .5 ft	BWS-94-05 .5 ft
CYANIDE ANIONS	CYANIDE	0.25	U	0.25	U	0.25	U
	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	7.05	U	2	U	2	U
	HMX	2	U	2	U	2	U
METALS	RDX	1.28	U	1.28	U	1.28	U
	ALUMINUM	6,440	U	6,390	U	6,020	U
	ARSENIC	3.55	U	4.88	5,480	3.69	5,030
	BARIUM	10.7	U	66	4.24	55.7	3.02
	CADMIUM	1.2	U	1.2	49.5	1.2	52
	CALCIUM	5,360	U	2,700	1.2	1.2	1.2
	CHROMIUM	13.9	U	6.96	18,000	13,600	5,860
	COBALT	4.59	U	3.38	8.37	8	5.34
	COPPER	8.63	U	12.6	2.94	3.09	3.24
	IRON	1,730	U	8,740	10.4	10.6	8.24
	LEAD	13.1	U	9,010	8,040	8,600	7,610
	MAGNESIUM	1,910	U	10.1	31.5	29.1	15.2
	MANGANESE	28.5	U	2,500	2,980	3,100	2,630
	NICKEL	5	U	214	166	192	180
	POTASSIUM	1,410	U	4.26	3.24	3.19	3.04
	SILVER	0.803	U	1,660	2,060	1,610	1,310
	SODIUM	96.6	U	0.803	2.63	0.803	0.803
	VANADIUM	3.74	U	132	138	148	174
	ZINC	45.6	U	9.16	9.23	9.35	8.49
				27.1	50.8	60.9	25

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Surface Soil (continued)

Group	Analytes	BWS-94-06		BWS-94-07		BWS-94-08		BWS-94-09		BWS-94-09		BWS-94-10	
		0.5 ft	U	.5 ft	U	0.5 ft	U	0.5 ft	U	0.5 ft (dup)	U	0.5 ft	U
CYANIDE ANIONS	CYANIDE	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
	NITRATE	NA		NA		NA		NA		NA		NA	
	NITRITE	NA		NA		NA		NA		NA		NA	
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	HMX	2	U	2	U	2	U	2	U	2	U	2	U
METALS	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
	ALUMINUM	4,730		5,250		6,560		5,060		6,060		6,380	
	ARSENIC	3.27		3.5		3.7		3.78		4.18		3.31	
	BARIUM	47.5		46.1		62.9		48.4		55.4		57.8	
	CADMIUM	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
	CALCIUM	2,990		3,380		6,800		3,030		3,240		2,220	
	CHROMIUM	5.82		5.95		7.22		5.44		8.77		7.75	
	COBALT	3.08		3.72		3.68		3.02		3.28		4	
	COPPER	9.11		5.62		8.26		9.48		8.95		7.29	
	IRON	7,290		7,690		9,050		7,700		8,340		9,350	
	LEAD	19.3		9.64		14.2		18.7		54.7		8.94	
	MAGNESIUM	2,050		1,970		2,810		2,100		2,340		2,350	
	MANGANESE	168		153		202		156		172		178	
	NICKEL	2.79		2.74	U	3.69		2.74	U	3.85		3.8	
	POTASSIUM	1,300		1,340		1,740		1,260		1,510		1,700	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	156		111		152		105		109		150	
	VANADIUM	1.56	U	8.12		9.69		1.56	U	8.52		10.7	
	ZINC	22.8		21.4		32.4		34.9		106		25.9	

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Surface Soil (continued)

Group	Analytes	BWS-94-11 0.5 ft	BWS-94-12 0.5 ft	BWS-94-13 0.5 ft	BWS-94-14 0.5 ft	BWS-94-15 0.5 ft	BWS-94-16 0.5 ft
CYANIDE ANIONS	CYANIDE	0.25	U	0.25	U	0.25	U
	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U
METALS	ALUMINUM	5,530	6,400	6,170	5,040	5,410	5,450
	ARSENIC	3.25	4.28	3.46	3.97	3.7	4.51
	BARIUM	47.8	58.1	58.5	54.3	49.1	52.9
	CADMIUM	1.54	1.2	1.2	1.2	1.2	1.2
	CALCIUM	2,350	4,970	22,700	26,600	11,900	3,750
	CHROMIUM	7.51	8.82	14.8	7.03	7.02	7.34
	COBALT	3.77	3.29	3.4	3.12	2.78	3.68
	COPPER	8.05	11	16.5	8.1	9.81	10.2
	IRON	8,650	10,000	8,940	6,970	7,310	7,890
	LEAD	12.5	36.1	77.5	16.9	22.3	21.6
	MAGNESIUM	2,040	2,720	3,580	3,410	2,650	2,330
	MANGANESE	152	189	195	151	151	173
	NICKEL	3.22	4.5	4.74	3.34	3.39	3.61
	POTASSIUM	1,370	1,460	1,630	1,410	1,370	1,440
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	113	140	153	133	140	140
	VANADIUM	9.78	9.32	9.62	8.16	8.07	8.15
	ZINC	29.3	94	76.1	31.9	29.9	49.1

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Surface Soil (continued)

Group	Analytes	BWS-94-17	
		0.5 R	U
CYANIDE ANIONS	CYANIDE	0.25	U
	NITRATE	NA	
	NITRITE	NA	
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U
	2,4-DINITROTOLUENE	2.5	U
	2,4,6-TRINITROTOLUENE	2	U
	HMX	2	U
	RDX	1.28	U
METALS	ALUMINUM	6,320	
	ARSENIC	5.54	
	BARIUM	51.6	
	CADMIUM	1.2	U
	CALCIUM	2,620	
	CHROMIUM	7.49	
	COBALT	3.11	
	COPPER	7.82	
	IRON	8,490	
	LEAD	13.3	
	MAGNESIUM	2,320	
	MANGANESE	165	
	NICKEL	3.45	
	POTASSIUM	1,540	
	SILVER	0.803	U
	SODIUM	109	
	VANADIUM	9.46	
	ZINC	32	

Summary of Analytes Detected in Soil for the Building 1303 Washout Pond (SWMU 22)

Subsurface Soil

Group	Analytes	BWB-94-01B 4 ft	BWB-94-01C 10 ft	BWB-94-02B 4 ft	BWB-94-02C 10 ft	BWB-94-03B 4 ft	BWB-94-03C 10 ft
EXPLOSIVES	2,4,6-TRINITROTOLUENE						
	RDX	4.47	2	65.7	15	2.09	2
METALS	ARSENIC	2.18	1.28	1.82	1.28	1.28	1.28
	BARIIUM	4.7	2.5	2.93	2.5	3.96	3.79
	CALCIUM	54.5	66.4	10.7	10.7	10.7	10.7
	CHROMIUM	42,800	28,000	27,000	24,100	14,500	21,000
	COBALT	56.9	26.2	54.9	24.6	49.7	31
	COPPER	3.05	3.45	2.5	4.14	2.5	2.5
	IRON	4.81	4.89	3.3	6.86	4.63	4.54
	LEAD	1,730	1,730	1,730	9,660	1,730	1,730
	MAGNESIUM	8.13	7.44	7.44	10.4	7.44	7.44
	MANGANESE	5,400	1,470	1,870	3,200	1,230	3,090
	MERCURY	184	28.5	28.5	28.5	28.5	28.5
	NICKEL	0.0754	0.05	0.05	0.05	0.05	0.05
	POTASSIUM	10.6	6.07	3.99	12.2	4.65	4.67
	SODIUM	1,280	235	235	235	235	235
	VANADIUM	178	210	104	194	110	95.4
		3.74	33.6	3.74	37.7	21.1	3.74

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit

Dup = Duplicate analysis

J = Value is estimated.

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1343 Outfall - Surface Soil

Group	Analytes	BRB-94-12A		BRD-92-01		BRS-92-08		BRS-92-09	
		0.5 ft	NA	0 ft	U	0 ft	U	0 ft	U
ANIONS METALS	NITRATE	NA		3.36	U	5.11		5.92	
	ALUMINUM	8090		NA		NA		NA	
	ARSENIC	5.9		48	U	48	U	48	U
	BARIUM	95.6		130		120		160	
	CALCIUM	69000		NA		NA		NA	
	CHROMIUM	23.1		17		13		22	
	COBALT	3.74		NA		NA		NA	
	COPPER	16.7		170		66		160	
	IRON	12200		28000		13000		20000	
	LEAD	24.3		80		29		70	
	MAGNESIUM	4490		NA		NA		NA	
	MANGANESE	248		NA		NA		NA	
	MERCURY	0.61	U	0.145		0.0915		0.199	
	NICKEL	8.42		8		4.9	U	4.9	U
	POTASSIUM	2240		NA		NA		NA	
	SILVER	0.803	U	0.0293		1.8		0.115	
	SODIUM	332		NA		NA		NA	
	ZINC	48.1		280		240		460	
	PCB 1254	0.0479	U	NA		NA		NA	
PESTICIDES/PCBS SEMIVOLATILES	BENZYL ALCOHOL	0.06		0.66	UJ	6.6	UJ	0.66	U
	BUTYLBENZYL PHTHALATE	1.8	U	0.47		6.6	UJ	0.66	UJ
	DIMETHYL PHTHALATE	0.23		0.66	U	6.6	U	0.66	U
	PCB 1254	0.32	UJ	0.646		NA		NA	

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1343 Outfall - Subsurface Soil

Group	Analytes	BRB-94-12B 3 ft	BRB-94-12C 5 ft	BRB-94-16A 3 ft	BRB-94-16B 5 ft	BRB-94-17A 3 ft	BRB-94-17B 5 ft
METALS	ALUMINUM	8100	1220	U	4680	857	U
	ARSENIC	5.34	3.57	3.83	4.26	3.44	U
	BARIUM	78.2	10.7	U	50.8	8.43	U
	CADMIUM	2.24	1.2	U	1.2	1.2	U
	CALCIUM	28800	13000	13100	36800	22600	24100
	CHROMIUM	54.6	14.3	14.7	23.8	36.7	16.1
	COBALT	5.83	3.4	4.14	3.09	4.57	2.93
	COPPER	20.6	6.41	9.79	5.38	9.36	6.89
	IRON	13800	1730	7790	6820	6790	6580
	LEAD	31	7.44	8.04	8.06	7.44	7.44
	MAGNESIUM	4730	1540	2140	3370	1810	2750
	MANGANESE	224	28.5	30.2	30.2	30.2	30.2
	MERCURY	0.61	0.61	0.0535	0.05	0.05	0.05
	NICKEL	9.86	3.9	7.74	5.74	7.55	5.71
	POTASSIUM	2050	235	1170	207	207	207
	SILVER	5.05	0.803	0.975	0.803	1.24	0.803
	SODIUM	445	283	241	225	186	278
	VANADIUM	23.8	3.74	18.9	16.9	19.7	22.1
	ZINC	44.9	6.69	24.7	3.55	20.1	3.55
	BIS (2-ETHYHEXYL) PHTHALATE	0.9	0.48	0.48	0.48	0.48	0.48
	FLUORANTHENE	0.032	0.032	0.032	0.032	0.16	0.054
CARCINOGENIC PAHS	BENZO [A] ANTHRACENE	0.041	0.041	0.041	0.041	0.14	0.041
	CHRYSENE	0.032	0.032	0.032	0.032	0.11	0.032
	B(A)P-EQUIVALENTS	0.128	0.128	0.128	0.128	0.014	0.128

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1344 Outfall - Surface Soil

Group	Analytes	BRB-94-11A 0.5 ft	BRS-92-07 0 ft
METALS	ALUMINUM	5560	NA
	ARSENIC	5.65	24 U
	BARIUM	57.2	40
	CADMIUM	2.66	1.82
	CALCIUM	19100	NA
	CHROMIUM	39.2	43.6
	COBALT	3.45	NA
	COPPER	18.1	17.8
	IRON	9850	8200
	LEAD	115	100
	MAGNESIUM	3120	NA
	MANGANESE	169	NA
	NICKEL	7.64	3.65
	POTASSIUM	1270	NA
	SILVER	0.803	0.0737
	SODIUM	143	NA
	VANADIUM	12.8	NA
	ZINC	90	150
	PCB 1254	0.0981	NA
	ACENEPHTHENE	0.33	8.2 U
	BENZO [G,H,I] PERYLENE	2.2	4.8 U
	FLUORANTHENE	2.9	10.4 U
	FLUORENE	0.18	6.6 UJ
	PHENANTHRENE	2.4	8.2 U
CARCINOGENIC PAHS	PCB 1254	0.32	NA
	PYRENE	4.1	8.4 U
	BENZO [A] ANTHRACENE	2.8	6 U
	BENZO [B] FLUORANTHENE	3.8	7.2 U
	BENZO [K] FLUORANTHENE	1.4	16 U
	CHRYSENE	3.1	9 U
	B(A)P-EQUIVALENTS	0.677	0.965 U
PESTICIDES/PCBS SEMIVOLATILES			

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1344 Outfall - Subsurface Soil

Group	Analytes	BRB-94-11B 3 ft	BRB-94-11C 5 ft	BRB-94-14A 3 ft	BRB-94-14B 5 ft
METALS	ARSENIC	5.81	4.99	4.15	4.25
	CALCIUM	16300	29100	39600	48500
	CHROMIUM	537	36.3	127	42.4
	COBALT	3.81	2.5	2.5	2.5
	COPPER	11.8	5.98	5.51	4.94
	IRON	11700	6150	7240	1120
	LEAD	13.6	12.3	8.67	7.44
	MAGNESIUM	1280	2430	2780	1710
	MERCURY	0.05	0.0596	0.05	0.05
	NICKEL	19.8	5.9	12.4	6.13
	SODIUM	154	155	240	249
	VANADIUM	18.2	11.7	2.23	21.2
	ZINC	19.6	3.55	3.55	3.55
	ACENEPHTHENE	0.041	0.12	0.041	0.041
	FLUORANTHENE	0.2	0.51	0.032	0.032
	PHENANTHRENE	0.18	0.61	0.032	0.032
	PYRENE	0.28	0.62	0.083	0.083
CARCINOGENIC PAHS	BENZO [A] ANTHRACENE	0.21	0.45	0.041	0.041
	BENZO [B] FLUORANTHENE	0.31	0.6	0.31	0.31
	BENZO [K] FLUORANTHENE	0.13	0.3	0.13	0.13
	CHRYSENE	0.23	0.49	0.032	0.032
	B(A)P-EQUIVALENTS	0.021	0.108	0.128	0.128

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1345 Outfall - Surface Soil

Group	Analytes	BRB-94-10A 0.5 ft	BRD-92-02 0 ft (dup)	BRD-92-02 0 ft	BRP-94-06A 0.5 ft	BRP-94-07A 0.5 ft	BRP-94-08A 0.5 ft
ANIONS CYANIDE METALS	NITRATE	NA	NA	7.27	NA	NA	NA
	CYANIDE	1.12	NA	41.1	0.25	0.25	1.71
	ALUMINUM	8820	NA	NA	9600	11100	857 U
	ARSENIC	4.19	NA	24	6.14	6.11	3.93
	BARIUM	84.5	NA	82	119	91.3	57.3
	CADMIUM	5.08	NA	2.8	4.85	1.2	16.9
	CALCIUM	7680	NA	NA	39100	19800	12500
	CHROMIUM	39	NA	470	36.8	36	79.4
	COBALT	4.38	NA	NA	4.49	5.08	3.49
	COPPER	14.3	NA	99	25.5	14.8	18.8
	IRON	11900	NA	35000	17200	13300	8840
	LEAD	79.1	NA	860	99.3	51.6	252
	MAGNESIUM	3750	NA	NA	6580	4360	3710
	MANGANESE	30.2	NA	NA	292	227	30.2 U
	NICKEL	7.51	NA	8.15	7.84	7.3	5.43
	POTASSIUM	2100	NA	NA	2830	2690	207 U
	SILVER	0.803	NA	0.81	0.803	0.803	0.803 U
PESTICIDES/PCBS	SODIUM	227	NA	NA	208	293	157
	VANADIUM	15.2	NA	NA	16.8	23.1	12.1
	ZINC	727	NA	1100	81.4	92.2	160
SEMIVOLATILES	PCB 1248	0.1	NA	5.2	NA	NA	0.925
	PCB 1254	0.235	NA	NA	NA	NA	0.0479
	2-METHYLNAPHTHALENE	0.032	NA	0.66	0.032	0.032	0.032 U
	ACENAPHTHYLENE	0.033	NA	0.92	0.033	0.033	0.033 U
	ACENEPHTHENE	0.55	NA	0.427	0.041	0.12	0.041 U
	ANTHRACENE	0.71	NA	1.08	0.71	0.71	0.71 U
	BENZO [G,H,I] PERYLENE	0.66	NA	0.427	0.38	0.18	0.18 U
	BENZYL ALCOHOL	0.032	NA	0.66	0.083	0.068	0.07 U
	BIS (2-ETHYHEXYL) PHTHALATE	0.48	NA	2.13	1.3	1.1	3.4
	DIBENZOFURAN	0.38	NA	0.66	0.38	0.38	0.38 U
	DIETHYL PHTHALATE	0.24	NA	0.66	0.24	0.24	0.24 U
	DIMETHYL PHTHALATE	0.46	NA	0.66	0.13	0.063	0.14
	DI-N-BUTYL PHTHALATE	1.3	NA	0.66	1.3	1.3	1.9
	FLUORANTHENE	1.5	NA	1.28	0.4	0.32	0.18
	FLUORENE	0.29	NA	0.66	0.065	0.065	0.065 U

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1345 Outfall - Surface Soil (continued)

Group	Analytes	BRB-94-10A 0.5 ft	BRD-92-02 0 ft (dup)	BRD-92-02 0 ft	BRP-94-06A 0.5 ft	BRP-94-07A 0.5 ft	BRP-94-08A 0.5 ft
SEMIVOLATILES	PHENANTHRENE	2.3	NA	1.71	0.36	0.42	0.18
	PCB 1248	0.32	NA	4.8	0.32	0.32	0.32
	PCB 1254	0.32	NA	NA	0.32	0.32	0.32
	PYRENE	2	NA	2.13	0.94	0.56	0.41
CARCINOGENIC PAHS	BENZO [A] ANTHRACENE	1	NA	0.854	0.44	0.25	0.17
	BENZO [A] PYRENE	1.2	NA	0.64	1.2	1.2	1.2
	BENZO [B] FLUORANTHENE	1.2	NA	0.64	0.7	0.31	0.31
	BENZO [K] FLUORANTHENE	0.58	NA	1.6	0.27	0.13	0.13
	CHRYSENE	1.2	NA	1.07	0.85	0.35	0.28
	DIBENZ [AH] ANTHRACENE	0.31	NA	0.4	0.31	0.31	0.31
	INDENO [1,2,3-C,D] PYRENE	2.4	NA	0.427	2.4	2.4	2.4
	B(A)P-EQUIVALENTS	0.227	NA	0.833	0.118	0.025	0.017

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1345 Outfall - Surface Soil (continued)

Group	Analytes	BRP-94-09A 0.5 ft (dup)	BRP-94-09A 0.5 ft	BRS-92-01 0 ft	BRS-94-06 0.5 ft
ANIONS CYANIDE METALS	NITRATE	NA	NA	3.36	U
	CYANIDE	13	13	5	U
	ALUMINUM	5440	1220	NA	9850
	ARSENIC	3.27	3.11	240	6.98
	BARIUM	126	126	260	119
	CADMIUM	52.4	46	0.424	1.2
	CALCIUM	27300	21900	NA	8320
	CHROMIUM	160	163	90	9.83
	COBALT	10.5	10.2	NA	4.84
	COPPER	73.4	58.6	19.3	9.73
	IRON	20500	16900	25000	12000
	LEAD	292	469	130	9.84
	MAGNESIUM	4010	3650	NA	6470
	MANGANESE	198	174	NA	396
	NICKEL	16	12.4	2.46	5.76
	POTASSIUM	1270	1300	NA	3080
	SILVER	0.803	0.803	0.179	0.803
	SODIUM	226	237	NA	352
	VANADIUM	13.7	3.74	NA	14.3
	ZINC	1050	1010	2200	39.1
	PCB 1248	34	28	NA	NA
	PCB 1254	0.48	0.48	NA	NA
PESTICIDES/PCBS	2-METHYLNAPHTHALENE	0.056	0.032	0.66	0.49
	ACENAPHTHYLENE	0.033	0.033	0.92	0.085
SEMIVOLATILES	ACENEPHTHENE	0.041	0.041	0.82	3.4
	ANTHRACENE	0.71	0.71	1.08	3.6
	BENZO [G,H,I] PERYLENE	0.37	0.18	0.48	2.3
	BENZYL ALCOHOL	0.032	0.032	0.66	0.032
	BIS (2-ETHYHEXYL) PHTHALATE	7.2	3.7	0.78	0.48
	DIBENZOFURAN	0.38	0.38	0.66	0.65
	DIETHYL PHTHALATE	0.24	0.24	0.66	0.53
	DIMETHYL PHTHALATE	0.11	0.32	0.66	0.063
	DI-N-BUTYL PHTHALATE	1.5	1.3	0.66	1.3
	FLUORANTHENE	0.34	0.22	1.04	5.5
	FLUORENE	0.065	0.065	0.66	2

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)
Building 1345 Outfall - Surface Soil (continued)

Group	Analytes	BRP-94-09A 0.5 ft (dup)	BRP-94-09A 0.5 ft	BRS-92-01 0 ft	BRS-94-06 0.5 ft
SEMIVOLATILES	PHENANTHRENE	0.3	0.18	0.82 U	9.5
	PCB 1248	0.32 UJ	0.32 UJ	NA	0.32 UJ
	PCB 1254	0.32 UJ	0.32 UJ	NA	0.32 UJ
	PYRENE	0.84	0.42	0.84 U	10
CARCINOGENIC PAHS	BENZO [A] ANTHRACENE	0.35	0.28	0.6 U	5.3
	BENZO [A] PYRENE	1.2	1.2	0.76 U	4.7
	BENZO [B] FLUORANTHENE	0.73	0.31 U	0.72 U	5.6
	BENZO [K] FLUORANTHENE	0.33	0.13 U	1.6 U	2.3
	CHRYSENE	0.62	0.39	0.9 U	6.4
	DIBENZ [AH] ANTHRACENE	0.31	0.31 U	0.4 U	0.58
	INDENO [1,2,3-C,D] PYRENE	2.4 U	2.4 U	0.42 U	2.4 U
	B(A)P-EQUIVALENTS	0.112	NA	0.096 U	6.399

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1345 Outfall - Subsurface Soil

Group	Analytes	BRB-94-10B		BRB-94-10C		BRB-94-15A		BRB-94-15B		BRP-94-06B		BRP-94-06C	
		3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft
METALS	ALUMINUM	857	857	U	857	U	857	U	857	U	6470	1170	U
	ARSENIC	5.91	3.32	U	4.57	U	3.01	U	8.21	U	8.21	5.23	U
	BARIUM	8.43	8.43	U	46.3	U	8.43	U	54.8	U	54.8	10.5	U
	CALCIUM	20800	36600	U	18200	U	27800	U	8430	U	8430	22600	U
	CHROMIUM	58.1	66.6	U	47.1	U	20.7	U	8.89	U	8.89	3.81	U
	COBALT	3.18	3.49	U	2.5	U	2.5	U	3.26	U	3.26	2.5	U
	COPPER	10.1	16.2	U	5.11	U	4.27	U	13.7	U	13.7	5.23	U
	IRON	11400	12700	U	9600	U	6700	U	12000	U	12000	1610	U
	LEAD	9.84	7.44	U	9.65	U	7.44	U	7.44	U	7.44	7.44	U
	MAGNESIUM	3930	2830	U	1930	U	2460	U	2310	U	2310	2380	U
	MANGANESE	30.2	30.2	U	30.2	U	30.2	U	158	U	158	31.5	U
	MERCURY	0.0551	0.05	U	0.05	U	0.05	U	0.61	U	0.61	0.61	U
	NICKEL	9.73	30	U	6.72	U	4.88	U	7.84	U	7.84	7.84	U
	POTASSIUM	207	207	U	207	U	207	U	1460	U	1460	239	U
	SODIUM	177	128	U	259	U	219	U	159	U	159	121	U
	VANADIUM	20	16.5	U	14.8	U	11.9	U	16	U	16	2.93	U
	ZINC	43.4	19.8	U	26.8	U	22.9	U	19.3	U	19.3	2.8	U
	PCB 1248	0.1	0.1	UJ	0.1	UJ	0.1	UJ	NA	UJ	NA	NA	U
	BENZYL ALCOHOL	0.032	0.032	U	0.032	U	0.032	U	0.032	U	0.032	0.032	U
	PCB 1248	0.32	0.32	UJ	0.32	UJ	0.32	UJ	0.32	UJ	0.32	0.32	UJ
PESTICIDES/PCBS													
SEMIVOLATILES													

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1345 Outfall - Subsurface Soil (continued)

Group	Analytes	BRP-94-07B 3 ft	BRP-94-07C 5 ft	BRP-94-08B 3 ft	BRP-94-08C 5 ft	BRP-94-09B 3 ft (dup)	BRP-94-09B 3 ft
METALS	ALUMINUM	1220	1220	857	857	857	1220
	ARSENIC	4.98	2.98	3.71	2.88	6.67	7.03
	BARIUM	10.7	10.7	8.43	8.43	8.43	10.7
	CALCIUM	21800	20100	17900	20000	19100	20800
	CHROMIUM	1.69	1.69	8.61	8.5	12.7	13.9
	COBALT	2.5	2.5	2.5	2.5	2.5	2.5
	COPPER	6.02	3.96	4.45	5.2	6.5	8.53
	IRON	8780	1730	1120	6250	6380	1730
	LEAD	8.9	7.44	9.78	7.44	21.8	18
	MAGNESIUM	2150	1380	1180	2420	2120	2290
	MANGANESE	28.5	28.5	30.2	30.2	30.2	28.5
	MERCURY	0.61	0.61	0.61	0.61	0.61	0.61
	NICKEL	3.87	3.99	3.82	5.91	5.35	3.87
	POTASSIUM	235	235	207	207	207	235
	SODIUM	109	173	117	396	157	318
	VANADIUM	3.74	3.74	2.23	11.2	2.23	3.74
	ZINC	6.69	6.69	25.3	3.55	46.4	41.3
	PCB 1248	NA	NA	0.1	0.1	0.184	0.117
	BENZYL ALCOHOL	0.032	0.032	0.065	0.032	0.032	0.032
	PCB 1248	0.32	0.32	0.32	0.32	0.32	0.32
PESTICIDES/PCBS SEMIVOLATILES							

Summary of Analytes Detected in Soil for the Bomb and Shell Reconditioning Building (SWMU 23)

Building 1345 Outfall - Subsurface Soil (continued)

Group	Analytes	BRP-94-09C	
		5 ft (dup)	5 ft
METALS	ALUMINUM	857	U
	ARSENIC	4.6	857
	BARIUM	8.43	U
	CALCIUM	24200	16600
	CHROMIUM	10.7	12.1
	COBALT	2.5	U
	COPPER	5.31	5.61
	IRON	6660	7200
	LEAD	13	10.3
	MAGNESIUM	1420	1440
	MANGANESE	30.2	U
	MERCURY	0.61	U
	NICKEL	5.52	6.23
	POTASSIUM	207	U
	SODIUM	157	172
	VANADIUM	2.23	11.2
	ZINC	20	22.1
	PCB 1248	0.1	UJ
	BENZYL ALCOHOL	0.083	J
	PCB 1248	0.32	UJ
PESTICIDES/PCBS			
SEMIVOLATILES			

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Asphalt Area - Surface Soil

Group	Analytes	BRB-94-02A 0.5 ft	BRB-94-04A 0.5 ft	HRB-94-05A 0.5 ft	BRP-94-13A 0.5 ft	BRS-92-06 0 ft	BRS-94-01 0.5 ft
ANIONS METALS	NITRATE	NA	NA	NA	NA	28	NA
	ALUMINUM	7900	7470	6530	7350	NA	3700
	ARSENIC	3.96	4.07	5.94	3.29	72	4.28
	BARIUM	79.7	70.4	70.4	68.4	13.5	49.4
	CALCIUM	46300	29200	23200	30800	NA	29400
	CHROMIUM	70.5	28	162	8.9	18	11
	COBALT	3.49	2.5	3.58	3.75	NA	3.17
	COPPER	8.12	14.3	10.7	7.2	77	13.9
	IRON	11100	9010	19000	9380	23000	6940
	LEAD	10.3	7.44	7.44	10.6	43	27.6
	MAGNESIUM	5930	4900	4540	4470	NA	3320
	MANGANESE	227	171	186	175	NA	142
	MERCURY	0.61	0.61	0.61	0.61	0.174	0.05
	NICKEL	7.47	7.84	7.84	5.57	7.4	3
	POTASSIUM	2070	1960	1770	1700	NA	169
	SILVER	0.803	0.803	0.803	0.803	0.0615	0.803
	SODIUM	336	256	175	243	NA	213
	VANADIUM	3.74	2.93	2.93	3.74	NA	8.14
	ZINC	6.69	23.7	22.7	6.69	76	26.9
SEMIVOLATILES	2-METHYLNAPHTHALENE	0.032	0.05	0.032	0.032	0.66	0.032
	ACENEPHTHENE	0.041	0.041	0.11	0.041	0.82	0.36
	BENZO [G,H,I] PERYLENE	0.18	0.18	0.18	0.18	0.839	0.97
	BENZYL ALCOHOL	0.032	0.07	0.032	0.032	0.66	0.045
	FLUORANTHENE	0.061	0.08	0.45	0.032	1.68	1.7
	FLUORENE	0.065	0.065	0.065	0.065	0.66	0.2
	PHENANTHRENE	0.11	0.21	0.57	0.065	1.05	1.8
	PYRENE	0.22	0.6	0.92	0.083	2.1	3
	BENZO [A] ANTHRACENE	0.041	0.21	0.42	0.041	1.47	1.4
	BENZO [A] PYRENE	1.2	1.2	1.2	1.2	1.26	1.2
CARCINOGENIC PAHS	BENZO [B] FLUORANTHENE	0.31	0.31	0.31	0.31	1.05	1.9
	BENZO [K] FLUORANTHENE	0.13	0.13	0.13	0.13	1.26	0.86
	CHRYSENE	0.15	0.46	0.67	0.032	1.47	2.1
	INDENO [1,2,3-C,D] PYRENE	2.4	2.4	2.4	2.4	0.839	2.4
	B(A)P-EQUIVALENTS	0.0002	0.021	0.043	0.128	1.61	0.341

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Asphalt Area - Subsurface Soil

Group	Analyses	BRB-94-02B 3 ft	BRB-94-02C 5 ft	BRB-94-04B 3 ft	BRB-94-04C 5 ft	BRB-94-05B 3 ft	BRB-94-05C 5 ft
METALS	ALUMINUM	1220	U	7290	1170	U	1170
	ARSENIC	2.5	U	3.27	3.31	U	2.58
	BARIUM	10.7	U	68.7	10.5	U	10.5
	CALCIUM	32900	54000	95000	28600	25900	45100
	CHROMIUM	78.2	27.6	27.4	14.5	116	16.6
	COBALT	3.38	2.5	U	2.5	U	4.69
	COPPER	8.72	4.03	14	6.24	7.15	4.19
	IRON	1730	1730	8800	1610	U	1610
	LEAD	7.44	14	7.44	7.44	U	7.44
	MAGNESIUM	3700	3570	4790	3230	4080	2540
	MANGANESE	28.5	28.5	167	31.5	U	31.5
	NICKEL	7.34	4.78	7.84	7.84	U	7.84
	POTASSIUM	235	235	1910	239	U	239
	SILVER	1.39	0.803	U	0.803	U	0.803
	SODIUM	222	108	250	227	134	100
	VANADIUM	22.9	3.74	2.93	2.93	16.9	47.2
	ZINC	6.69	6.69	23.1	2.8	15	2.8
	2-METHYLNAPHTHALENE	0.22	0.032	0.082	0.25	0.032	0.032
	BENZO [G,H,I] PERYLENE	0.49	0.18	0.18	0.94	0.18	0.18
CARCINOGENIC PAHS	BENZYL ALCOHOL	0.06	0.067	0.032	0.032	U	0.032
	FLUORANTHENE	0.14	0.032	0.064	0.2	0.051	0.032
	PHENANTHRENE	0.69	0.032	0.38	1.2	0.14	0.032
	PYRENE	2.4	0.083	1.3	4.3	0.42	0.083
	BENZO [A] ANTHRACENE	0.85	0.041	0.35	1.5	0.14	0.041
	BENZO [B] FLUORANTHENE	0.31	0.31	0.31	0.65	U	0.31
	CHRYSENE	1.6	0.032	0.88	2.5	0.27	0.032
	B(A)P-EQUIVALENTS	0.087	0.128	0.036	0.218	0.014	0.128

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Asphalt Area - Subsurface Soil (continued)

Group	Analytes	BRP-94-13B		BRP-94-13C	
		3 ft	5 ft	3 ft	5 ft
METALS	ALUMINUM	1220	U	1220	U
	ARSENIC	5.25	U	2.5	U
	BARIUM	10.7	U	10.7	U
	CALCIUM	35000		42300	
	CHROMIUM	1.69	U	1.69	U
	COBALT	2.5	U	2.66	U
	COPPER	3.94	U	2.84	U
	IRON	1730	U	1730	U
	LEAD	7.44	U	8.12	U
	MAGNESIUM	2640		3030	
	MANGANESE	28.5	U	28.5	U
	NICKEL	3.73	U	2.74	U
	POTASSIUM	235	U	235	U
	SILVER	0.803	U	0.803	U
	SODIUM	163		252	
	VANADIUM	3.74	UJ	3.74	UJ
	ZINC	6.69	U	6.69	U
SEMIVOLATILES	2-METHYLNAPHTHALENE	0.032	U	0.032	U
	BENZO [G,H,I] PERYLENE	0.18	U	0.18	U
	BENZYL ALCOHOL	0.032	U	0.032	U
	FLUORANTHENE	0.032	U	0.032	U
	PHENANTHRENE	0.032	U	0.032	U
	PYRENE	0.083	U	0.083	U
	BENZO [A] ANTHRACENE	0.041	U	0.041	U
CARCINOGENIC PAHS	BENZO [B] FLUORANTHENE	0.31	U	0.31	U
	CHRYSENE	0.032	U	0.032	U
	B(A)P-EQUIVALENTS	0.128	U	0.128	U

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Perimeter Area - Surface Soil

Group	ANALYTES	BRP-94-01A 0.5 ft	BRP-94-03A 0.5 ft	BRS-92-02 0 ft	BRS-92-03 0 ft	BRS-92-04 0 ft	BRS-92-05 0 ft
ANIONS METALS	NITRATE	NA	NA	3.36	U	3.36	U
	ALUMINUM	13200	13600	NA	NA	6.59	5.95
	ARSENIC	4.58	5.25	24	U	24	U
	BARIUM	118	101	74	31	110	76
	BERYLLIUM	0.573	0.57	0.078	U	0.078	U
	CADMIUM	1.2	1.2	0.515	U	0.424	U
	CALCIUM	22400	3300	NA	NA	NA	NA
	CHROMIUM	23.3	18.9	80	22	70	23.6
	COBALT	5.15	5.26	NA	NA	NA	NA
	COPPER	20.6	11.6	27	7.2	29	52
	IRON	15300	14600	12000	6200	21000	16000
	LEAD	34	14.8	140	40	240	110
	MAGNESIUM	7260	3990	NA	NA	NA	NA
	MANGANESE	375	313	NA	NA	NA	NA
	MERCURY	0.61	0.61	0.0259	U	0.0259	U
	NICKEL	8.64	7.94	2.46	U	26.3	25.8
	POTASSIUM	3660	3410	NA	NA	NA	NA
	SILVER	0.803	0.803	0.234	0.0476	0.0992	0.0765
	SODIUM	300	226	NA	NA	NA	NA
	VANADIUM	21	22.3	NA	NA	NA	NA
SEMIVOLATILES	ZINC	61.9	43.5	300	40	140	120
	BENZYL ALCOHOL	0.032	U	6.6	UJ	6.6	UJ
	FLUORANTHENE	0.032	U	10.4	U	10.4	U
	PHENANTHRENE	0.032	U	8.2	U	8.2	U

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Perimeter Area - Surface Soil (continued)

Group	Analytes	BRS-94-02		BRS-94-03		BRS-94-04		BRS-94-05		BRS-94-07		BRS-94-08	
		0.5 ft	NA	0.5 ft	NA	0.5 ft	NA	0.5 ft	NA	0.5 ft	NA	0.5 ft	NA
ANIONS METALS	NITRATE	11900	NA	6630	NA	11300	NA	5460	NA	8230	NA	13100	NA
	ALUMINUM	5.56		4.35		4.52		5.3		6.08		7.17	
	ARSENIC	120		80.1		113		63.6		84.8		143	
	BARIUM	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U
	BERYLLIUM	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
	CADMIUM	4470		34800		3640		33000		25200		14400	
	CALCIUM	12		10.2		12.4		7.3		19.2		15.1	
	CHROMIUM	5.6		3.61		5.28		3.4		4.46		5.62	
	COBALT	11.9		9.95		10.6		9.96		11.6		14.4	
	COPPER	13800		9700		13200		7940		11800		15600	
	IRON	14.5		15		13.3		14		30.1		13.1	
	LEAD	5480		5080		5080		4550		4310		8060	
	MAGNESIUM	372		239		351		181		239		465	
	MANGANESE	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
	MERCURY	7.65		4.76		6.76		3.14		5.65		8.81	
	NICKEL	3210		1670		3060		1290		1840		4210	
	POTASSIUM	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
SEMIVOLATILES	SILVER	226		244		229		311		194		284	
	SODIUM	15.5		12.3		14.8		8.71		16.3		19.9	
	VANADIUM	41.7		30.3		42.8		29.1		48.2		50.2	
	ZINC	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U
	BENZYL ALCOHOL	0.032	U	0.032	U	0.045	U	0.032	U	0.032	U	0.032	U
	FLUORANTHENE	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U
	PHENANTHRENE	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Perimeter Area - Surface Soil (continued)

Group	Analytes	BRS-94-09 0.5 ft	BRS-94-10 0.5 ft
ANIONS METALS	NITRATE	NA	NA
	ALUMINUM	5190	7850
	ARSENIC	5.9	2.92
	BARIUM	74.3	96.2
	BERYLLIUM	0.427 U	0.427 U
	CADMIUM	1.2 U	1.2 U
	CALCIUM	19800	18700
	CHROMIUM	8.57	10.6
	COBALT	2.98	3.93
	COPPER	24.9	20.4
	IRON	9030	11100
	LEAD	12.6	13.2
	MAGNESIUM	4060	4880
	MANGANESE	144	229
	MERCURY	0.0529	0.05 U
	NICKEL	3.55	4.85
	POTASSIUM	1380	2160
	SILVER	0.803 U	0.803 U
	SODIUM	303	350
	VANADIUM	9.04	13.3
	ZINC	76.4	66
	BENZYL ALCOHOL	0.032 U	0.032 U
	FLUORANTHENE	0.032 U	0.032 U
	PHENANTHRENE	0.18	0.15
SEMIVOLATILES			

Summary of Analytes Detected in Soil for the Bomb and Reconditioning Building (SWMU 23)

Perimeter Area - Subsurface Soil

Group	Analytes	BRP-94-01B 3 ft	BRP-94-01C 5 ft	BRP-94-03B 3 ft	BRP-94-03C 5 ft
METALS	ALUMINUM	1220 U	8110	1220 U	1220 U
	ARSENIC	4.7	7.29	7.22	4.57
	BARIUM	10.7 U	80.4	55.5	10.7 U
	CALCIUM	13900	36100	23700	24600
	CHROMIUM	9.09	12.2	18.3	18.1
	COBALT	3.19	3.59	3.29	3.18
	COPPER	6.83	9.11	5.54	5.34
	IRON	8930	12700	10200	1730 U
	LEAD	7.44 U	12.6	7.44 U	7.44 U
	MAGNESIUM	1490	4030	2070	2160
	MANGANESE	28.5 U	275	179	28.5 U
	NICKEL	5.53	9.92	6.76	4.46
	POTASSIUM	235 U	1410	235 U	235 U
	SODIUM	127	212	159	139
	VANADIUM	3.74 UJ	19.1 J	3.74 UJ	3.74 UJ
	BENZYL ALCOHOL	0.066	0.046	0.032 U	0.032 U
	SEMIVOLATILES				

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit

Dup = Duplicate analysis

B(a)P = Benzo(a)pyrene

J = Value is estimated.

Summary of Analytes Detected in Soil for the Former Transformer Boxng Area (SWMU 31)

Surface Soil

Group	Analytes	TBS-94-01 0.5 ft	TBS-94-02 0.5 ft	TBS-94-03 0.5 ft	TBS-94-04 0.5 ft	TBS-94-05 0.5 ft	TBS-94-06 0.5 ft
METALS	ALUMINUM	NA	NA	6,640	NA	NA	5,670
	ARSENIC	NA	NA	10.2	NA	NA	7.57
	BARIUM	NA	NA	65.4	NA	NA	59.4
	CALCIUM	NA	NA	49,400	NA	NA	76,000
	CHROMIUM	NA	NA	14.1	NA	NA	11.7
	COBALT	NA	NA	2.74	NA	NA	2.5 U
	COPPER	NA	NA	11.9	NA	NA	9.25
	IRON	NA	NA	1,390	NA	NA	1,390 U
	LEAD	NA	NA	40.4	NA	NA	31.3
	MAGNESIUM	NA	NA	5,260	NA	NA	5,440
	MANGANESE	NA	NA	149	NA	NA	131
	NICKEL	NA	NA	5.13	NA	NA	4.14
	POTASSIUM	NA	NA	1,750	NA	NA	1,490
	SODIUM	NA	NA	294	NA	NA	284
	VANADIUM	NA	NA	2.91	NA	NA	2.91 U
	ZINC	NA	NA	52.6	NA	NA	41.2
SEMIVOLATILES	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	0.48	NA	NA	0.93
	FLUORANTHENE	NA	NA	0.36	NA	NA	0.23
	PHENANTHRENE	NA	NA	0.34	NA	NA	0.23
	PYRENE	NA	NA	0.56	NA	NA	0.32
c-PAHs	BENZO [A] ANTHRACENE	NA	NA	0.27	NA	NA	0.16
	BENZO [B] FLUORANTHENE	NA	NA	0.62	NA	NA	0.31 U
	CHRYSENE	NA	NA	0.39	NA	NA	0.24
	B(a)P-equivalent c-PAH concentration	NA	NA	0.0894	NA	NA	0.0162

Summary of Analytes Detected in Soil for the Former Transformer Boxing Area (SWMU 31)

Surface Soil (continued)

Group	Analytes	TBS-94-07 0.5 ft	TBS-94-08 0.5 ft	TBS-94-09 0.5 ft	TBS-94-09 0.5 ft (dup)	TBS-94-10 0.5 ft	TBS-94-11 0.5 ft
METALS	ALUMINUM	NA	NA	8,250	8,290	NA	NA
	ARSENIC	NA	NA	8.99	9.74	NA	NA
	BARIUM	NA	NA	83.6	82.2	NA	NA
	CALCIUM	NA	NA	48,300	49,900	NA	NA
	CHROMIUM	NA	NA	15.7	15.1	NA	NA
	COBALT	NA	NA	3.29	2.99	NA	NA
	COPPER	NA	NA	14.4	14.5	NA	NA
	IRON	NA	NA	8,600	7,970	NA	NA
	LEAD	NA	NA	37.2	36.4	NA	NA
	MAGNESIUM	NA	NA	5,910	5,400	NA	NA
	MANGANESE	NA	NA	195	193	NA	NA
	NICKEL	NA	NA	7.02	6.23	NA	NA
	POTASSIUM	NA	NA	2,180	2,270	NA	NA
	SODIUM	NA	NA	369	317	NA	NA
	VANADIUM	NA	NA	2.91	2.91	NA	NA
	ZINC	NA	NA	62.5	62.8	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	NA	NA	1.8	0.82	NA	NA
	FLUORANTHENE	NA	NA	0.14	0.2	NA	NA
	PHENANTHRENE	NA	NA	0.18	0.23	NA	NA
c-PAHs	PYRENE	NA	NA	0.34	0.28	NA	NA
	BENZO [A] ANTHRACENE	NA	NA	0.14	0.15	NA	NA
	BENZO [B] FLUORANTHENE	NA	NA	0.31	0.31	NA	NA
	CHRYSENE	NA	NA	0.2	0.2	NA	NA
	B(a)P-equivalent c-PAH concentration	NA	NA	0.0142	0.0152	NA	NA

Summary of Analytes Detected in Soil for the Former Transformer Boxing Area (SWMU 31)

Surface Soil (continued)

Group	Analytes	TBS-94-12 0.5 ft	TBS-94-13 0.5 ft	TBS-94-14 0.5 ft	TBS-94-15 0.5 ft	TBS-94-16 0.5 ft	TBS-94-17 0.5 ft
METALS	ALUMINUM	11,600	NA	NA	7,170	NA	NA
	ARSENIC	10.4	NA	NA	8.96	NA	NA
	BARIUM	104	NA	NA	71.8	NA	NA
	CALCIUM	45,300	NA	NA	47,500	NA	NA
	CHROMIUM	17.7	NA	NA	14.2	NA	NA
	COBALT	3.58	NA	NA	2.5	NA	NA
	COPPER	15.3	NA	NA	11.1	NA	NA
	IRON	10,500	NA	NA	7,530	NA	NA
	LEAD	32.3	NA	NA	30.3	NA	NA
	MAGNESIUM	6,100	NA	NA	5,740	NA	NA
	MANGANESE	238	NA	NA	161	NA	NA
	NICKEL	6.55	NA	NA	5.07	NA	NA
	POTASSIUM	3,250	NA	NA	1,980	NA	NA
	SODIUM	354	NA	NA	308	NA	NA
	VANADIUM	18.1	NA	NA	2.91	NA	NA
	ZINC	57.6	NA	NA	51.4	NA	NA
	BIS (2-ETHYHEXYL) PHTHALATE	0.48	U	NA	0.48	NA	NA
	FLUORANTHENE	0.043	NA	NA	0.14	NA	NA
	PHENANTHRENE	0.032	U	NA	0.14	NA	NA
c-PAHs	PYRENE	0.083	U	NA	0.19	NA	NA
	BENZO [A] ANTHRACENE	0.041	U	NA	0.11	NA	NA
	BENZO [B] FLUORANTHENE	0.31	U	NA	0.31	NA	NA
	CHRYSENE	0.059	NA	NA	0.14	NA	NA
	B(a)P-equivalent c-PAH concentration	0.0001	NA	NA	0.0111	NA	NA

Summary of Analytes Detected in Soil for the Former Transformer Boxng Area (SWMU 31)

Surface Soil (continued)

Group	Analytes	TBS-94-18 0.5 ft	TBS-94-19 0.5 ft	TBS-94-20 0.5 ft	TBS-94-21 0.5 ft
METALS	ALUMINUM	8,360	NA	NA	7,120
	ARSENIC	8.41	NA	NA	9.07
	BARIUM	83.5	NA	NA	74.1
	CALCIUM	67,000	NA	NA	78,000
	CHROMIUM	14	NA	NA	16.1
	COBALT	2.81	NA	NA	2.5 U
	COPPER	13	NA	NA	13.2
	IRON	8,140	NA	NA	8,310
	LEAD	26.3	NA	NA	25.4
	MAGNESIUM	5,240	NA	NA	5,720
	MANGANESE	193	NA	NA	177
	NICKEL	6.37	NA	NA	6.66
	POTASSIUM	2,200	NA	NA	1,850
	SODIUM	327	NA	NA	250
	VANADIUM	2.91	U	NA	2.91 U
	ZINC	72.7	NA	NA	45.7 U
	BIS (2-ETHYHEXYL) PHTHALATE	0.48	U	NA	0.48 U
	FLUORANTHENE	0.032	U	NA	0.067
	PHENANTHRENE	0.032	U	NA	0.075
c-PAHs	PYRENE	0.083	U	NA	0.083 U
	BENZO [A] ANTHRACENE	0.041	U	NA	0.041 U
	BENZO [B] FLUORANTHENE	0.31	U	NA	0.31 U
	CHRYSENE	0.032	U	NA	0.09
	B(a)P-equivalent c-PAH concentration	0.0059	U	NA	0.0001

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit

Dup = Duplicate analysis

c-PAH = carcinogenic polycyclic aromatic hydrocarbons

B(a)P = benzo(a)pyrene

Summary of Analytes Detected in Soil for the PCB Spill Area (SWMU 32)

Surface Soil

Group	Analytes	PPB-94-01A 0.5 ft	PPB-94-02A 0.5 ft	PPB-94-03A 0.5 ft	PPB-94-04A 0.5 ft	PPB-94-05A 0.5 ft	PPB-94-06A 0.5 ft
METALS	ALUMINUM	16,800	NA	12,900	NA	NA	NA
	ARSENIC	10.9	NA	7.4	NA	NA	NA
	BARIUM	175	NA	125	NA	NA	NA
	BERYLLIUM	0.744	NA	0.53	NA	NA	NA
	CADMIUM	1.2	U	1.2	U	NA	NA
	CALCIUM	41300	NA	82000	NA	NA	NA
	CHROMIUM	34.8	NA	26.7	NA	NA	NA
	COBALT	5.95	NA	4.57	NA	NA	NA
	COPPER	20.2	NA	14.6	NA	NA	NA
	IRON	15800	NA	10800	NA	NA	NA
	LEAD	27.7	NA	18.9	NA	NA	NA
	MAGNESIUM	10100	NA	9530	NA	NA	NA
	MANGANESE	463	NA	290	NA	NA	NA
	MERCURY	0.055	U	0.05	U	NA	NA
	NICKEL	11.8	NA	8.52	NA	NA	NA
	POTASSIUM	5030	NA	3790	NA	NA	NA
	SODIUM	347	NA	274	NA	NA	NA
	VANADIUM	21.5	NA	23.2	NA	NA	NA
	ZINC	61.9	NA	43.8	NA	NA	NA
SEMIVOLATILES	BENZYL ALCOHOL	0.032	U	0.072	J	NA	NA
	FLUORANTHENE	0.032	U	0.032	UJ	NA	NA

Summary of Analytes Detected in Soil for the PCB Spill Area (SWMU 32)

Surface Soil (continued)

Group	Analytes	PPB-94-07A 0.5 ft	PPB-94-08A 0.5 ft	PPS-94-01 0.5 ft	PPS-94-02 0.5 ft	PPS-94-03 0.5 ft	PPS-94-04 0.5 ft
METALS	ALUMINUM	NA	12,200	NA	NA	NA	NA
	ARSENIC	NA	7.21	NA	NA	NA	NA
	BARIUM	NA	140	NA	NA	NA	NA
	BERYLLIUM	NA	0.54	NA	NA	NA	NA
	CADMIUM	NA	1.2	NA	NA	NA	NA
	CALCIUM	NA	84000	NA	NA	NA	NA
	CHROMIUM	NA	23.8	NA	NA	NA	NA
	COBALT	NA	4.22	NA	NA	NA	NA
	COPPER	NA	16.6	NA	NA	NA	NA
	IRON	NA	11400	NA	NA	NA	NA
	LEAD	NA	23.7	NA	NA	NA	NA
	MAGNESIUM	NA	9580	NA	NA	NA	NA
	MANGANESE	NA	332	NA	NA	NA	NA
	MERCURY	NA	0.055	NA	NA	NA	NA
	NICKEL	NA	10.1	NA	NA	NA	NA
	POTASSIUM	NA	4000	NA	NA	NA	NA
	SODIUM	NA	310	NA	NA	NA	NA
	VANADIUM	NA	18	NA	NA	NA	NA
	ZINC	NA	49.7	NA	NA	NA	NA
	BENZYL ALCOHOL	NA	0.032	NA	NA	NA	NA
	FLUORANTHENE	NA	0.032	NA	NA	NA	NA
SEMIVOLATILES							

Summary of Analytes Detected in Soil for the PCB Spill Area (SWMU 32)

Surface Soil (continued)

Group	Analytes	PPS-94-04	PPS-94-05	PPS-94-06	PPS-94-07
		0.5 ft (dup)	0.5 ft	0.5 ft	0.5 ft
METALS	ALUMINUM	NA	11000	NA	NA
	ARSENIC	NA	16.1	NA	NA
	BARIUM	NA	113	NA	NA
	BERYLLIUM	NA	0.491	NA	NA
	CADMIUM	NA	4.01	NA	NA
	CALCIUM	NA	48600	NA	NA
	CHROMIUM	NA	19.7	NA	NA
	COBALT	NA	3.96	NA	NA
	COPPER	NA	26.2	NA	NA
	IRON	NA	10900	NA	NA
	LEAD	NA	70.6	NA	NA
	MAGNESIUM	NA	7800	NA	NA
	MANGANESE	NA	305	NA	NA
	MERCURY	NA	0.05	NA	NA
	NICKEL	NA	8.74	NA	NA
	POTASSIUM	NA	3390	NA	NA
	SODIUM	NA	234	NA	NA
	VANADIUM	NA	17.9	NA	NA
	ZINC	NA	83.7	NA	NA
	BENZYL ALCOHOL	NA	0.048 J	NA	NA
SEMIVOLATILES	FLUORANTHENE	NA	0.047 J	NA	NA

Summary of Analytes Detected in Soil for the PCB Spill Area (SWMU 32)

Subsurface Soil

Group	Analytes	PPB-94-01B 5 ft	PPB-94-01C 11 ft	PPB-94-02B 5 ft	PPB-94-02C 10 ft	PPB-94-03B 5 ft	PPB-94-03C 11 ft
METALS	ALUMINUM	779	U	NA	NA	4,030	779
	ARSENIC	4.73	4.38	NA	NA	6.04	4.8
	BARIUM	33.9	15.8	NA	NA	66.9	26.1
	CALCIUM	140000	140000	NA	NA	120000	130000
	CHROMIUM	38.3	40.2	NA	NA	18.1	35.4
	COBALT	2.5	2.5	U	NA	2.5	U
	COPPER	4.12	3.24	NA	NA	7.97	5.91
	IRON	963	963	NA	NA	963	963
	LEAD	7.44	7.44	NA	NA	14.1	7.44
	MAGNESIUM	8,310	6,310	NA	NA	7,760	7,960
	MANGANESE	114	17.5	U	NA	123	103
	NICKEL	6.22	6.65	NA	NA	6.01	7.83
	POTASSIUM	184	184	U	NA	1,200	1,170
	SODIUM	114	72.3	NA	NA	137	96.2
	VANADIUM	11.7	10.9	NA	NA	21.6	21.3
	ZINC	10.9	15.7	NA	NA	26.2	21.2
SEMIVOLATILES	BENZYL ALCOHOL	0.032	U	U	NA	0.069	U
	DI-N-BUTYL PHTHALATE	1.3	U	U	NA	1.3	U

Summary of Analytes Detected in Soil for the PCB Spill Area (SWMU 32)

Subsurface Soil (continued)

Group	Analytes	PPB-94-04B 5 ft	PPB-94-04C 11 ft	PPB-94-05B 5 ft	PPB-94-05C 11 ft	PPB-94-06B 5 ft	PPB-94-06C 11 ft
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA
	BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the PCB Spill Area (SWMU 32)

Subsurface Soil (continued)

Group	Analytes	PPB-94-07B 5 ft	PPB-94-07C 10 ft	PPB-94-08B 5 ft	PPB-94-08C 13 ft
METALS	ALUMINUM	NA	NA	8,320	5,510
	ARSENIC	NA	NA	7.22	5.78
	BARIUM	NA	NA	87.9	50.2
	CALCIUM	NA	NA	98000	130000
	CHROMIUM	NA	NA	33.3	54
	COBALT	NA	NA	2.72	2.5 U
	COPPER	NA	NA	10.4	5.49
	IRON	NA	NA	7,320	5,230
	LEAD	NA	NA	15	7.44 U
	MAGNESIUM	NA	NA	8430	10900
	MANGANESE	NA	NA	182	140
	NICKEL	NA	NA	7.04	11.9
	POTASSIUM	NA	NA	2600	1790
	SODIUM	NA	NA	206	146
	VANADIUM	NA	NA	13.9	17.5
	ZINC	NA	NA	31.3	22.4
	BENZYL ALCOHOL	NA	NA	0.032 U	0.032 U
SEMIVOLATILES	DI-N-BUTYL PHTHALATE	NA	NA	1.3 U	1.8

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit

Dup = Duplicate analysis

J = Value is estimated

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil

Group	Analytes	WSS-92-01 0 ft	WSS-92-02 0 ft	WSS-92-03 0 ft	WSS-92-04 0 ft	WSS-92-05 0 ft	WSS-92-06 0 ft
ANIONS METALS	NITRATE	6.15	5.14	2.6	23	4.8	4.6
	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	240	240	72	72	24	240
	BARIUM	150	120	99	170	120	120
	BERYLLIUM	0.078	0.078	0.078	0.078	0.078	0.078
	CADMIUM	0.424	0.424	0.424	0.424	0.424	0.424
	CHROMIUM	18.4	18.1	14.7	20.6	16.2	15.7
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	21	28	12.5	8.98	22.5	15.6
	IRON	19000	17000	13000	22000	14000	16000
	LEAD	82	77	35	17	130	57
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	0.026	0.026	0.026	0.026	0.036	0.026
	NICKEL	2.46	2.46	2.46	2.46	2.46	2.46
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	0.252	0.355	0.24	0.345	0.479	0.234
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	110	120	53	62	200	95

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-92-01 0 ft	WSS-92-02 0 ft	WSS-92-03 0 ft	WSS-92-04 0 ft	WSS-92-05 0 ft	WSS-92-06 0 ft
PESTICIDES	ALDRIN	NA	NA	NA	NA	NA	NA
	ALPHA CHLORDANE	NA	NA	NA	NA	NA	NA
	ALPHA-ENDOSULFAN	NA	NA	NA	NA	NA	NA
	BETA-BENZENEHEXACHLORIDE	NA	NA	NA	NA	NA	NA
	BETA-ENDOSULFAN	NA	NA	NA	NA	NA	NA
	DELTA-BENZENEHEXACHLORIDE	NA	NA	NA	NA	NA	NA
	DIELDRIN	NA	NA	NA	NA	NA	NA
	ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
	ENDRIN	NA	NA	NA	NA	NA	NA
	ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
	ENDRIN KETONE	NA	NA	NA	NA	NA	NA
	GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
	HEPTACHLOR	NA	NA	NA	NA	NA	NA
	HEPTACHLOREPOXIDE	NA	NA	NA	NA	NA	NA
	LINDANE	NA	NA	NA	NA	NA	NA
	PPDDD	NA	NA	NA	NA	NA	NA
	PPDDE	NA	NA	NA	NA	NA	NA
	PPDDT	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	ALDRIN	0.29	0.29	0.29	0.29	0.29	0.29
	ALPHA CHLORDANE	1	10	1	1	1	1
	ALPHA-ENDOSULFAN	1	1	1	1	1	1
	BETA-BENZENEHEXACHLORIDE	0.36	0.36	0.36	0.36	0.36	0.36
	BETA-ENDOSULFAN	0.2	0.2	0.2	0.2	0.2	0.2
	BUTYLBENZYL PHTHALATE	0.52	0.33	0.28	0.33	0.33	0.33
	DELTA-BENZENEHEXACHLORIDE	0.29	0.29	0.29	0.29	0.29	0.29
	DIELDRIN	0.3	0.3	0.3	0.3	0.3	0.3
	ENDOSULFAN SULFATE	0.2	0.2	0.2	0.2	0.2	0.2
	ENDRIN	0.41	0.41	0.41	0.41	0.41	0.41
	ENDRIN KETONE	0.2	0.2	0.2	0.2	0.2	0.2
	GAMMA CHLORDANE	NA	10	NA	0.2	0.2	0.2
	HEPTACHLOR	0.28	0.28	0.28	0.28	0.28	0.28
	HEPTACHLOREPOXIDE	0.36	0.36	0.36	0.36	0.36	0.36
	LINDANE	0.43	0.43	0.43	0.43	0.43	0.43
	PPDDD	0.18	0.18	0.18	0.18	0.18	0.18
	PPDDE	0.22	0.22	0.22	0.22	0.22	0.22
	PPDDT	0.41	0.41	0.41	0.41	0.41	0.41
		U	U	U	U	U	U
		U	U	U	U	U	U
		U	U	U	U	U	U

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-94-01		WSS-94-02		WSS-94-03		WSS-94-04		WSS-94-05		WSS-94-06	
		0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	0.5 ft	
ANIONS METALS	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-94-01		WSS-94-02		WSS-94-03		WSS-94-04		WSS-94-05		WSS-94-06	
		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft		0.5 ft	
PESTICIDES	ALDRIN	0.001	UJ	0.002		0.018	J	0.001	U	0.001	U	0.001	UJ
	ALPHA CHLORDANE	0.013		0.004	UJ	0.243		0.004	UJ	0.004	UJ	0.051	
	ALPHA-ENDOSULFAN	0.001	UJ	0.001	U	0.012	J	0.001	U	0.001	U	0.003	J
	BETA-BENZENEHEXACHLORIDE	0.008	UJ	0.008	U	0.008	UJ	0.008	U	0.008	U	0.008	UJ
	BETA-ENDOSULFAN	0.001	UJ	0.001	U	0.018	J	0.001	U	0.001	U	0.001	UJ
	DELTA-BENZENEHEXACHLORIDE	0.009	UJ	0.009	U	0.039	J	0.009	U	0.009	U	0.009	UJ
	DIELDRIN	0.002	J	0.002	U	0.003	J	0.002	U	0.002	U	0.002	UJ
	ENDOSULFAN SULFATE	0.001	UJ	0.001	UJ	0.016	J	0.001	UJ	0.001	UJ	0.001	UJ
	ENDRIN	0.015	J	0.007	U	0.16	J	0.007	U	0.007	U	0.019	J
	ENDRIN ALDEHYDE	0.001	UJ	0.001	U	0.007	J	0.001	U	0.001	U	0.001	UJ
	ENDRIN KETONE	0.001	UJ	0.001	UJ	0.001	J	0.001	UJ	0.001	UJ	0.001	UJ
	GAMMA-CHLORDANE	0.015		0.004	UJ	0.203		0.004	UJ	0.004	UJ	0.037	
	HEPTACHLOR	0.002	UJ	0.002	U	0.002	UJ	0.002	U	0.002	U	0.002	UJ
	HEPTACHLOREPOXIDE	0.001	UJ	0.001	U	0.014	J	0.001	U	0.001	U	0.01	J
	LINDANE	0.001	UJ	0.001	U	0.014	J	0.001	U	0.001	U	0.001	UJ
	PPDDD	0.01	J	0.026		0.012	J	0.005		0.007		0.014	J
	PPDDE	0.011	J	0.036		0.036	J	0.028		0.062		1.3	J
	PPDDT	0.042	J	0.049		0.01	J	0.015		0.037		0.075	J
SEMIVOLATILES	ALDRIN	NA		NA		NA		NA		NA		NA	
	ALPHA CHLORDANE	NA		NA		NA		NA		NA		NA	
	ALPHA-ENDOSULFAN	NA		NA		NA		NA		NA		NA	
	BETA-BENZENEHEXACHLORIDE	NA		NA		NA		NA		NA		NA	
	BETA-ENDOSULFAN	NA		NA		NA		NA		NA		NA	
	BUTYLBENZYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	DELTA-BENZENEHEXACHLORIDE	NA		NA		NA		NA		NA		NA	
	DIELDRIN	NA		NA		NA		NA		NA		NA	
	ENDOSULFAN SULFATE	NA		NA		NA		NA		NA		NA	
	ENDRIN	NA		NA		NA		NA		NA		NA	
	ENDRIN KETONE	NA		NA		NA		NA		NA		NA	
	GAMMA CHLORDANE	NA		NA		NA		NA		NA		NA	
	HEPTACHLOR	NA		NA		NA		NA		NA		NA	
	HEPTACHLOREPOXIDE	NA		NA		NA		NA		NA		NA	
	LINDANE	NA		NA		NA		NA		NA		NA	
	PPDDD	NA		NA		NA		NA		NA		NA	
	PPDDE	NA		NA		NA		NA		NA		NA	
	PPDDT	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-94-07 0.5 ft	WSS-94-08 0.5 ft	WSS-94-09 0.5 ft	WSS-94-09 0.5 ft (dup)	WSS-94-10 0.5 ft	WSS-94-11 0.5 ft
ANIONS METALS	NITRATE	NA	NA	NA	NA	NA	NA
	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-94-07		WSS-94-08		WSS-94-09		WSS-94-09		WSS-94-10		WSS-94-11	
		0.5 ft	UJ	0.5 ft	UJ	0.5 ft	UJ	0.5 ft (dup)	UJ	0.5 ft	UJ	0.5 ft	UJ
PESTICIDES	ALDRIN	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	ALPHA CHLORDANE	0.187		0.105		0.008		0.009		0.004	UJ	0.004	UJ
	ALPHA-ENDOSULFAN	0.38	J	0.006	J	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	BETA-BENZENEHEXACHLORIDE	0.16	J	0.008	UJ	0.008	UJ	0.008	UJ	0.008	UJ	0.008	UJ
	BETA-ENDOSULFAN	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	DELTA-BENZENEHEXACHLORIDE	2.4	J	0.009	UJ	0.009	UJ	0.009	UJ	0.009	UJ	0.009	UJ
	DIELDRIN	0.034	J	0.007	J	0.002	UJ	0.002	UJ	0.002	UJ	0.002	UJ
	ENDOSULFAN SULFATE	0.037	J	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	ENDRIN	4	J	0.042	J	0.007	UJ	0.007	UJ	0.007	UJ	0.007	UJ
	ENDRIN ALDEHYDE	0.016	J	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	ENDRIN KETONE	0.009	J	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	GAMMA-CHLORDANE	0.158		0.078		0.006		0.007		0.004	UJ	0.004	UJ
	HEPTACHLOR	0.15	J	0.002	UJ	0.002	UJ	0.002	UJ	0.002	UJ	0.002	UJ
	HEPTACHLOREPOXIDE	0.25	J	0.007	J	0.001	UJ	0.002	J	0.001	UJ	0.001	UJ
	LINDANE	0.041	J	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
	PPDDD	0.11	J	0.003	UJ	0.003	UJ	0.003	UJ	0.003	UJ	0.003	UJ
	PPDDE	0.68	J	0.02	J	0.006	J	0.007	J	0.019		0.003	UJ
	PPDDT	0.026	J	0.007	J	0.006	J	0.007	J	0.008		0.004	UJ
SEMIVOLATILES	ALDRIN	NA		NA		NA		NA		NA		NA	
	ALPHA CHLORDANE	NA		NA		NA		NA		NA		NA	
	ALPHA-ENDOSULFAN	NA		NA		NA		NA		NA		NA	
	BETA-BENZENEHEXACHLORIDE	NA		NA		NA		NA		NA		NA	
	BETA-ENDOSULFAN	NA		NA		NA		NA		NA		NA	
	BUTYLBENZYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	DELTA-BENZENEHEXACHLORIDE	NA		NA		NA		NA		NA		NA	
	DIELDRIN	NA		NA		NA		NA		NA		NA	
	ENDOSULFAN SULFATE	NA		NA		NA		NA		NA		NA	
	ENDRIN	NA		NA		NA		NA		NA		NA	
	ENDRIN KETONE	NA		NA		NA		NA		NA		NA	
	GAMMA CHLORDANE	NA		NA		NA		NA		NA		NA	
	HEPTACHLOR	NA		NA		NA		NA		NA		NA	
	HEPTACHLOREPOXIDE	NA		NA		NA		NA		NA		NA	
	LINDANE	NA		NA		NA		NA		NA		NA	
	PPDDD	NA		NA		NA		NA		NA		NA	
	PPDDE	NA		NA		NA		NA		NA		NA	
	PPDDT	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-94-12 0.5 ft	WSS-94-13 0.5 ft	WSS-94-14 0.5 ft	WSS-94-15 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA
	ALUMINUM	19200	14000	15100	19500
METALS	ARSENIC	32	16.3	19.1	15.6
	BARIUM	179	153	162	195
	BERYLLIUM	0.736	0.621	0.653	0.918
	CADMIUM	1.32	1.2	1.43	1.2
	CHROMIUM	15700	39000	23200	43300
	COBALT	18.9	14.4	16	19.8
	COPPER	7.27	5.78	6.11	7.8
	IRON	23.3	17.7	22.5	20.6
	LEAD	20000	15800	17000	20900
	MAGNESIUM	69	39.6	59.5	49.6
	MANGANESE	10800	9850	9480	11700
	MERCURY	663	475	579	564
	NICKEL	0.05	0.05	0.05	0.05
	POTASSIUM	13.9	11.8	13.1	15.1
	SILVER	6850	4960	5760	7030
	SODIUM	0.803	0.803	0.803	0.803
	VANADIUM	252	221	244	269
	ZINC	19.5	17.3	16.2	20.4
		139	75.2	125	101

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Surface Soil (continued)

Group	Analytes	WSS-94-12	WSS-94-13	WSS-94-14	WSS-94-15
		0.5 ft	0.5 ft	0.5 ft	0.5 ft
PESTICIDES	ALDRIN	0.001 U	0.001 U	0.001 U	0.001 U
	ALPHA CHLORDANE	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ
	ALPHA-ENDOSULFAN	0.001 U	0.001 U	0.001 U	0.001 U
	BETA-BENZENEHEXACHLORIDE	0.008 U	0.008 U	0.008 U	0.008 U
	BETA-ENDOSULFAN	0.001 U	0.001 U	0.001 U	0.001 U
	DELTA-BENZENEHEXACHLORIDE	0.009 U	0.009 U	0.009 U	0.009 U
	DIELDRIN	0.002 U	0.002 U	0.002 U	0.002 U
	ENDOSULFAN SULFATE	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	ENDRIN	0.007 U	0.007 U	0.007 U	0.007 U
	ENDRIN ALDEHYDE	0.001 U	0.001 U	0.001 U	0.001 U
	ENDRIN KETONE	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	GAMMA-CHLORDANE	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ
	HEPTACHLOR	0.002 U	0.002 U	0.002 U	0.002 U
	HEPTACHLOREPOXIDE	0.001 U	0.001 U	0.001 U	0.001 U
	LINDANE	0.001 U	0.001 U	0.001 U	0.001 U
	PPDDD	0.003 U	0.003 U	0.003 U	0.003 U
	PPDDE	0.015	0.003 U	0.003 U	0.003 U
	PPDDT	0.016	0.004 U	0.011	0.004 U
	ALDRIN	NA	NA	NA	NA
	ALPHA CHLORDANE	NA	NA	NA	NA
	ALPHA-ENDOSULFAN	NA	NA	NA	NA
SEMIVOLATILES	BETA-BENZENEHEXACHLORIDE	NA	NA	NA	NA
	BETA-ENDOSULFAN	NA	NA	NA	NA
	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA
	DELTA-BENZENEHEXACHLORIDE	NA	NA	NA	NA
	DIELDRIN	NA	NA	NA	NA
	ENDOSULFAN SULFATE	NA	NA	NA	NA
	ENDRIN	NA	NA	NA	NA
	ENDRIN KETONE	NA	NA	NA	NA
	GAMMA CHLORDANE	NA	NA	NA	NA
	HEPTACHLOR	NA	NA	NA	NA
	HEPTACHLOREPOXIDE	NA	NA	NA	NA
	LINDANE	NA	NA	NA	NA
	PPDDD	NA	NA	NA	NA
	PPDDE	NA	NA	NA	NA
	PPDDT	NA	NA	NA	NA
	ALDRIN	NA	NA	NA	NA
	ALPHA CHLORDANE	NA	NA	NA	NA
	ALPHA-ENDOSULFAN	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Subsurface Soil

Group	Analytes	WSB-92-01 2 ft	WSB-92-02 4 ft	WSB-92-03 2 ft	WSB-92-04 3 ft	WSB-92-05 2 ft	WSB-92-06 3 ft
ANIONS METALS	NITRATE	NA	NA	5.07	3.99	3.36	3.36
	BARIUM	170	130	73	53	40	31
	CHROMIUM	18.6	14.2	13.3	9.32	7.94	6.82
	COPPER	9.58	5.09	9.11	4.56	4.5	3.25
	IRON	20000	13000	10000	7300	6800	5000
	LEAD	15	9.5	19	9.9	8.1	7.5
	SILVER	0.07	0.036	0.164	0.17	0.029	0.029
SEMIVOLATILES	ZINC	46	38	46	17.9	16.8	11.6
	ALDRIN	0.29	0.29	0.29	0.29	0.29	0.29
	ALPHA CHLORDANE	1	1	1	1	1	1
	DELTA-BENZENEHEXACHLORIDE	0.29	0.29	0.29	0.29	0.29	0.29
	GAMMA CHLORDANE	NA	NA	5	5	5	5
	PPDDD	0.18	0.18	0.18	0.18	0.18	0.18
	PPDDE	0.22	0.22	0.22	0.22	0.22	0.22
	PPDDT	0.41	0.41	0.41	0.41	0.41	0.41
		U	U	U	U	U	U
		U	U	U	U	U	U

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Subsurface Soil (continued)

Group	Analytes	WSB-92-07 2 ft	WSB-92-08 4 ft	WSB-92-09 6 ft	WSB-94-01 1.5 ft	WSP-94-02 3 ft	WSP-94-03 3 ft
ANIONS METALS	NITRATE	7.05	5.84	3.36	U	NA	NA
	BARIUM	230	93	80	U	NA	NA
	CHROMIUM	17.3	16	11	U	NA	NA
	COPPER	15	10.7	5.5	U	NA	NA
	IRON	27000	17000	12000	U	NA	NA
	LEAD	21	14	14	U	NA	NA
	SILVER	0.036	0.015	0.015	U	NA	NA
	ZINC	78	49	27	U	NA	NA
	ALDRIN	0.29	0.29	0.29	U	0.001	0.002
	ALPHA CHLORDANE	1	1	1	U	0.004	0.06
SEMIVOLATILES	DELTA-BENZENEHEXACHLORIDE	0.29	0.29	0.29	U	0.009	0.01
	GAMMA CHLORDANE	5	5	5	U	0.004	0.067
	PPDDD	0.18	0.18	0.18	U	0.003	0.003
	PPDDE	0.22	0.22	0.22	U	0.008	0.003
	PPDDT	0.41	0.41	0.41	U	0.008	0.004

Summary of Analytes Detected in Soil for the Wastewater Spreading Area (SWMU 35)

Subsurface Soil (continued)

Group	Analytes	WSP-94-04 3 ft	WSB-94-05 2 ft	WSB-94-06 3 ft	WSP-94-07 3 ft	WSP-94-08 3 ft
ANIONS METALS	NITRATE	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA
SEMIVOLATILES	ALDRIN	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	ALPHA CHLORDANE	0.06	0.004 U	0.004 U	0.004 U	0.004 U
	DELTA-BENZENEHEXACHLORIDE	0.009 U	0.009 U	0.009 U	0.009 U	0.009 U
	GAMMA CHLORDANE	0.06	0.004 U	0.004 U	0.004 U	0.004 U
	PPDDD	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
	PPDDE	0.005	0.01	0.003 U	0.003 U	0.003 U
	PPDDT	0.004 U	0.008	0.004 U	0.004 U	0.004 U

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit.

Dup = Duplicate analysis

J = Value is estimated

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Surface Soil

Group	Analytes	OSS-92-05 0.5 ft	OSS-92-06 0.5 ft	OSS-92-07 0.5 ft	OSS-92-08 0.5 ft	OSS-92-09 0.5 ft	OSS-92-10 0.5 ft
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	24	24	24	72	24	24
	BARIUM	580	400	47	40	120	110
	BERYLLIUM	0.078	U	0.078	U	0.078	U
	CADMIUM	0.424	U	0.424	U	0.424	U
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	7.73	8.55	3.9	3.9	13.6	37.1
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	430	2,300	5.54	18.3	12.9	10.5
	IRON	15,000	13,000	5,900	10,000	16,000	15,000
	LEAD	1,200	1,500	8.3	16	18	18
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	0.026	0.026	0.026	0.026	0.026	0.026
	NICKEL	5.55	2.46	2.46	2.46	2.46	8.03
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	0.301	0.181	0.035	0.063	0.076	0.051
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	370	370	30	74	81	52
	BUTYLBENZYL PHTHALATE	0.09	U	UJ	0.054	UJ	0.022
	DI-N-BUTYL PHTHALATE	0.33	UJ	0.33	0.33	0.33	0.33
SEMIVOLATILES							UJ

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Surface Soil (continued)

Group	Analytes	OSS-92-11 0.5 ft	OSS-92-12 0.5 ft	OSS-92-13 0.5 ft	OSP-94-01A 0.5 ft	OSP-94-02A 0.5 ft	OSP-94-03A 0.5 ft
METALS	ALUMINUM	NA	NA	NA	857	857	4360
	ARSENIC	24	24	24	3.8	3.27	4.13
	BARIUM	120	100	400	8.43	8.43	58.8
	BERYLLIUM	0.078	0.078	0.078	0.427	0.427	0.427
	CADMIUM	0.424	0.424	20	1.2	1.2	1.2
	CALCIUM	NA	NA	NA	65,000	63,000	40,800
	CHROMIUM	12.6	16.2	22.3	3.14	4.6	6.72
	COBALT	NA	NA	NA	2.5	2.5	2.5
	COPPER	18.6	12.3	150	3.53	10.3	17.9
	IRON	15,000	15,000	54,000	1,120	6,110	9,100
	LEAD	21	16	1,900	7.44	20.9	17.7
	MAGNESIUM	NA	NA	NA	6,780	6,450	6,280
	MANGANESE	NA	NA	NA	30.2	30.2	30.2
	MERCURY	0.027	0.026	0.026	0.05	0.05	0.05
	NICKEL	2.46	2.46	12.8	3.8	4.15	5.83
	POTASSIUM	NA	NA	NA	207	207	207
	SILVER	0.122	0.062	1.7	0.803	0.803	0.803
	SODIUM	NA	NA	NA	92.2	116	171
	VANADIUM	NA	NA	NA	2.23	2.23	2.23
	ZINC	70	66	1500	15.4	45.2	108
	BUTYLBENZYL PHTHALATE	0.025	0.33	0.047	NA	NA	NA
	DI-N-BUTYL PHTHALATE	0.33	0.33	0.049	NA	NA	NA
SEMIVOLATILES							

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Surface Soil (continued)

Group	Analytes	OSP-94-04A 0.5 ft	OSP-94-05A 0.5 ft	OSP-94-06A 0.5 ft	OSS-94-01 0.5 ft	OSS-94-02 0.5 ft	OSS-94-03 0.5 ft
METALS	ALUMINUM	857	14,800	14,300	881	U	23,300
	ARSENIC	4.63	5.57	5.1	4.04	U	6.51
	BARIUM	49.9	147	120	55.5		204
	BERYLLIUM	0.427	0.647	0.593	0.427	U	0.989
	CADMIUM	1.2	1.2	1.2	1.2	U	1.2
	CALCIUM	34,900	5,950	4,830	40,400	51,900	43,000
	CHROMIUM	3.73	18.2	17.1	1.21	U	23.1
	COBALT	2.5	4.99	4.67	2.5	U	7.4
	COPPER	9.65	21.9	16.7	17.3	11	32.3
	IRON	1,120	15,200	14,000	1,260	U	22,600
	LEAD	21.1	57.4	30.6	20.3	26.1	28.8
	MAGNESIUM	3,820	4,860	4,470	4,370	10,200	14,400
	MANGANESE	30.2	369	339	24.6	172	482
	MERCURY	0.05	0.05	0.05	0.05	U	0.05
	NICKEL	3.96	8.05	7.14	2.74	U	14.4
	POTASSIUM	207	4040	3880	203	U	6920
	SILVER	0.803	0.803	0.803	0.803	U	0.803
	SODIUM	229	328	292	70.2	94.9	332
	VANADIUM	2.23	22.6	21.9	2.71	U	27.5
	ZINC	38.5	78.2	66	31.8	39.1	105
SEMIVOLATILES	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Surface Soil (continued)

Group	Analytes	OSS-94-04 0.5 ft	OSS-94-05 0.5 ft	OSS-94-06 0.5 ft	OSS-94-07 0.5 ft	OSS-94-08 0.5 ft	OSS-94-09 0.5 ft
METALS	ALUMINUM	881	U	5,150	881	U	881
	ARSENIC	7.32	4.41	4.91	4.59	U	5.17
	BARIUM	198	49.3	81.3	60.6	U	55.6
	BERYLLIUM	0.427	U	0.427	U	U	0.427
	CADMIUM	1.59	1.2	1.2	1.2	U	1.2
	CALCIUM	44,100	42,900	58,000	40,200	68,000	70,000
	CHROMIUM	11.6	1.21	9.2	8.03	U	1.21
	COBALT	3.97	2.5	2.5	2.57	U	2.5
	COPPER	39.4	12.7	20	27.4	13.1	4.95
	IRON	26,100	6,970	9,870	14,000	11,800	6,810
	LEAD	112	31.1	34.6	19.7	26.2	8.91
	MAGNESIUM	5,500	4,470	7,350	4,390	10,800	6,930
	MANGANESE	218	24.6	177	155	196	24.6
	MERCURY	0.05	0.05	0.05	U	0.05	0.05
	NICKEL	5.63	4.14	6.85	6.59	6.89	4.53
	POTASSIUM	203	203	1190	203	U	203
	SILVER	0.803	0.803	0.803	0.803	U	0.803
	SODIUM	119	88.7	185	116	67.2	65.6
	VANADIUM	2.71	2.71	2.71	2.71	U	2.71
	ZINC	122	52.3	122	84.1	61.9	26.9
SEMIVOLATILES	BUTYLBENZYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Surface Soil (continued)

Group	Analytes	OSS-94-09 0.5 ft (dup)	OSS-94-10 0.5 ft	OSS-94-11 0.5 ft	OSS-94-12 0.5 ft	OSS-94-13 0.5 ft	OSS-94-14 0.5 ft
METALS	ALUMINUM	881	U	5530	881	U	7,350
	ARSENIC	3.15	4.65	4.7	4.86	4.41	12,500
	BARIUM	63.7	9.05	63.7	262	85.9	4.78
	BERYLLIUM	0.427	U	0.427	U	U	138
	CADMIUM	1.2	1.2	1.2	0.427	U	0.54
	CALCIUM	64,000	59,000	38,600	1.2	U	1.2
	CHROMIUM	1.21	U	8.39	70,000	37,000	U
	COBALT	2.5	2.5	2.5	6.77	8.52	7,180
	COPPER	5.12	5.93	9.71	2.5	2.92	15.7
	IRON	6,500	1,260	9,490	139	13.2	4.35
	LEAD	12.6	7.44	11.6	10,700	11,900	25.3
	MAGNESIUM	6,810	6,470	6,080	1400	29.7	15,400
	MANGANESE	266	24.6	166	6,380	6,760	41.8
	MERCURY	0.05	0.05	0.05	170	230	4,770
	NICKEL	6.53	4.51	5.88	0.05	U	377
	POTASSIUM	203	203	1400	5.84	6.13	0.05
	SILVER	0.803	0.803	0.803	203	1960	8.56
	SODIUM	47.8	61.3	133	0.803	U	3410
	VANADIUM	2.71	2.71	2.71	89.3	139	0.803
	ZINC	26.2	20.4	44	2.71	13.6	173
	BUTYLBENZYL PHTHALATE	NA	NA	NA	172	63.2	20
SEMIVOLATILES	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	76.1
		NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Surface Soil (continued)

Group	Analytes	OSS-94-15 0.5 ft	OSS-94-16 0.5 ft
METALS	ALUMINUM	13,300	11,700
	ARSENIC	4.78	4.53
	BARIUM	113	116
	BERYLLIUM	0.57	0.58
	CADMIUM	1.2	1.2 U
	CALCIUM	3,840	4,370
	CHROMIUM	15.7	16.2
	COBALT	4.48	4.98
	COPPER	13.4	14.7
	IRON	15,200	15,600
	LEAD	16.4	25.1
	MAGNESIUM	4,580	4,660
	MANGANESE	358	362
	MERCURY	0.05 U	0.054
	NICKEL	8.64	9.18
	POTASSIUM	3,540	3,140
	SILVER	0.803	0.803 U
	SODIUM	164	130
	VANADIUM	19.6	17.5
	ZINC	52.4	57.6
SEMIVOLATILES	BUTYLBENZYL PHTHALATE	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Subsurface Soil

Group	Analytes	OSP-94-01B 3 ft	OSP-94-01C 5 ft	OSP-94-02B 3 ft	OSP-94-02C 5 ft	OSP-94-03B 3 ft	OSP-94-03C 5 ft
METALS	ALUMINUM	857	857	857	857	857	857
	ARSENIC	3.56	2.5	3.09	3.54	3.86	4.33
	BARIUM	8.43	8.43	8.43	8.43	8.43	8.43
	BERYLLIUM	0.427	0.427	0.427	0.427	0.427	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	45,000	35,700	63,000	66,000	45,700	37,200
	CHROMIUM	3.65	2.55	3.78	2.99	3.14	2.52
	COBALT	2.5	2.5	2.5	2.5	2.5	2.5
	COPPER	2.84	2.84	2.84	2.84	2.84	2.84
	IRON	1,120	1,120	1,120	1,120	1,120	1,120
	LEAD	7.44	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	3,640	2,800	3,870	3,710	4,090	3,100
	MANGANESE	30.2	30.2	30.2	30.2	30.2	30.2
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	4.22	3.39	4.43	3.77	3.69	3.52
	POTASSIUM	207	207	207	207	207	207
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	127	69.8	157	64.5	167	96.3
	VANADIUM	2.23	2.23	2.23	2.23	2.23	2.23

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Subsurface Soil (continued)

Group	Analytes	OSP-94-04B 3 ft	OSP-94-04C 5 ft	OSP-94-04C 5 ft (dup)	OSP-94-05B 3 ft	OSP-94-05C 5 ft	OSP-94-06B 3 ft
METALS	ALUMINUM	857	857	857	6,820	1,220	1,220
	ARSENIC	3.9	3.72	3.97	4.28	2.95	3.89
	BARIUM	8.43	8.43	8.43	64.2	10.7	56.9
	BERYLLIUM	0.427	0.427	0.427	0.427	0.427	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	43,800	63,000	44,500	13,700	29,200	15,000
	CHROMIUM	2.94	4.23	3.66	9.3	1.69	8.45
	COBALT	2.5	2.5	2.5	3.32	2.5	3.26
	COPPER	2.84	2.84	2.84	6.39	3.21	7.21
	IRON	1,120	1,120	1,120	9,300	1,730	9,540
	LEAD	7.44	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	3,910	4,310	3,750	2,450	3,620	2,280
	MANGANESE	30.2	30.2	30.2	168	28.5	28.5
	MERCURY	0.091	0.05	0.05	0.05	0.05	0.05
	NICKEL	3.47	4.1	3.69	5.58	3.17	5.43
	POTASSIUM	207	207	207	1,330	235	235
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	236	195	125	207	227	155
	VANADIUM	2.23	2.23	2.23	3.74	3.74	3.74

Summary of Analytes Detected in Soil for the Old Burn Staging Area (SWMU 36)

Subsurface Soil (continued)

Group	Analytes	OSP-94-06C	
		5 ft	
METALS	ALUMINUM	1,220	U
	ARSENIC	3.56	
	BARIUM	10.7	U
	BERYLLIUM	0.427	U
	CADMIUM	1.2	U
	CALCIUM	42,800	
	CHROMIUM	11.7	
	COBALT	2.62	
	COPPER	2.84	U
	IRON	1,730	U
	LEAD	7.44	U
	MAGNESIUM	3,760	
	MANGANESE	28.5	U
	MERCURY	0.05	U
	NICKEL	3.93	
	POTASSIUM	235	U
	SILVER	0.803	U
	SODIUM	174	
	VANADIUM	3.74	UJ

All values are in $\mu\text{g/g}$ (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit.

Dup = Duplicate analysis

J = Value is estimated

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil

Group	Analytes	ARS-92-101 0 ft	ARS-92-201 0 ft	ARS-92-301 0 ft	ARS-92-401 0 ft	ARS-92-B01 0 ft	ARS-92-B02 0 ft
ANIONS	NITRATE	5.05	4.3	11.2	5.12	7.04	3.36
	NITRITE	3.16	3.16	3.16	3.16	3.16	3.16
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.352	0.352	0.352	0.352	0.352	0.352
	2,4-DINITROTOLUENE	0.744	0.744	0.744	1.41	0.744	0.744
	2,4,6-TRINITROTOLUENE	0.931	0.931	0.931	0.931	0.931	0.931
	2,6-DINITROTOLUENE	0.83	0.83	0.83	0.83	0.83	0.83
	HMX	0.755	3.82	1	6	1	1
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	0.445	1.45	0.445	44	0.445	0.445
	TETRYL	1.04	1.04	1.04	1.04	1.04	1.04
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	240	240	24	240	24	24
	BARIUM	43	110	82	76	85	130
	BERYLLIUM	0.078	0.078	0.078	0.078	0.078	0.078
	CADMIUM	0.424	0.424	0.424	1.42	0.424	4.6
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	8.16	10.4	9.44	14.4	9.69	12.4
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	5.65	24	50	82	10	160
	IRON	5500	13000	11,000	11,000	10,000	12,000
	LEAD	17	11	130	19	110	1300
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	0.026	0.026	0	0	0	0
	NICKEL	2.46	2.46	2.46	2.46	2.46	2.46
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	0.082	0.066	0.93	0.55	0.074	0.121
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	19.7	150	150	170	30	180
SEMIVOLATILES	2,4-DINITROTOLUENE	0.39	0.39	0.39	0.39	0.39	0.39
	2,6-DINITROTOLUENE	0.53	0.53	0.53	0.53	0.53	0.53
	DIETHYL PHTHALATE	0.33	0.33	0.939	0.33	0.33	0.33
	DIMETHYL PHTHALATE	0.33	0.33	0.33	0.33	0.33	0.33
	DI-N-BUTYL PHTHALATE	0.33	0.33	0.33	0.167	0.33	0.33

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARS-92-B03 0 ft	ARS-92-B04 0 ft	ARS-92-R21 0 ft	ARS-92-R31 0 ft	ARS-92-R61 0 ft	ARP-94-01A 0.5 ft
ANIONS	NITRATE	4.34	5.74	3.36	3.36	3.36	NA
	NITRITE	3.16	3.16	3.16	3.16	3.16	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.352	0.352	0.352	0.352	0.352	0.922
	2,4-DINITROTOLUENE	0.744	0.744	0.744	0.744	0.744	2.5
	2,4,6-TRINITROTOLUENE	0.931	0.931	0.931	0.931	0.931	2
	2,6-DINITROTOLUENE	0.83	0.83	0.83	0.83	0.83	2
	HMX	0.755	0.755	1	1	1	2
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	0.445	0.445	0.445	0.445	0.445	1.28
METALS	TETRYL	1.04	1.04	1.04	1.04	1.04	2.11
	ALUMINUM	NA	NA	NA	NA	NA	10100
	ARSENIC	24	24	24	24	24	9.03
	BARIUM	77	84	100	58	91	86.4
	BERYLLIUM	0.078	0.078	0.078	0.078	0.078	0.427
	CADMIUM	0.424	0.424	0.424	0.424	0.424	1.2
	CALCIUM	NA	NA	NA	NA	NA	30600
	CHROMIUM	11.8	10.1	12	6.71	10.5	12.7
	COBALT	NA	NA	NA	NA	NA	3
	COPPER	13.3	12.2	13.2	7.11	13.8	9.21
	IRON	11000	11000	13,000	7,200	12,000	10,400
	LEAD	190	140	21	42	18	20.6
	MAGNESIUM	NA	NA	NA	NA	NA	6960
	MANGANESE	NA	NA	NA	NA	NA	229
	MERCURY	0.026	0.026	0	0	0	0
	NICKEL	2.46	2.46	2.46	2.46	2.46	5.71
	POTASSIUM	NA	NA	NA	NA	NA	2960
	SILVER	0.048	0.108	0.078	0.52	0.048	0.803
	SODIUM	NA	NA	NA	NA	NA	206
	VANADIUM	NA	NA	NA	NA	NA	17.7
	ZINC	34	57	43	55	39	44.2
SEMIVOLATILES	2,4-DINITROTOLUENE	0.39	0.39	0.39	0.39	0.39	NA
	2,6-DINITROTOLUENE	0.53	0.53	0.53	0.53	0.53	NA
	DIETHYL PHTHALATE	0.33	0.33	0.33	0.33	0.33	NA
	DIMETHYL PHTHALATE	0.33	0.33	0.33	0.33	0.33	NA
	DI-N-BUTYL PHTHALATE	0.33	0.33	0.33	0.33	0.33	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-02A 0.5 ft	ARP-94-03A 0.5 ft	ARP-94-04A 0.5 ft	ARP-94-05A 0.5 ft	ARP-94-06A 0.5 ft	ARP-94-07A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	2	U	2	U
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	1.28	U	1.28	U	1.28	U
	TETRYL	2.11	U	2.11	U	2.11	U
METALS	ALUMINUM	15800	18100	12900	17100	13400	17100
	ARSENIC	4.71	5.49	4.28	5.43	4.48	4.49
	BARIUM	133	153	108	138	123	156
	BERYLLIUM	0.607	0.73	0.52	0.623	0.542	0.659
	CADMIUM	1.2	U	1.2	U	1.2	U
	CALCIUM	11900	10900	6820	8350	8400	13600
	CHROMIUM	17.3	19	13.9	18.1	13.9	16.6
	COBALT	4.38	6.22	3.73	5.26	3.74	4.95
	COPPER	13.8	30.1	14.5	19.8	14.8	13
	IRON	15700	18300	13000	16300	13900	16400
	LEAD	9.55	33.6	12.2	21.3	13.8	8.31
	MAGNESIUM	7890	7420	5620	6790	7370	9340
	MANGANESE	397	441	310	382	412	484
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	8.94	10.5	7.09	8.51	6.82	9.39
	POTASSIUM	5240	5480	3960	5310	4580	5900
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	320	321	280	455	265	414
	VANADIUM	25.8	27.4	20.4	29.2	20.5	26
	ZINC	83.5	67.4	45.9	48.6	45.1	50.5
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-08A 0.5 ft	ARP-94-09A 0.5 ft	ARP-94-09A 0.5 ft (dup)	ARP-94-10A 0.5 ft	ARP-94-11A 0.5 ft	ARP-94-12A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	2	U	2	U
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	1.28	U	1.28	U	1.28	U
	TETRYL	2.11	U	2.11	U	2.11	U
METALS	ALUMINUM	18500	12800	13600	8940	11800	13100
	ARSENIC	5.03	3.59	4.56	3.38	4.87	6
	BARIUM	171	115	119	72	98.4	112
	BERYLLIUM	0.689	0.507	0.52	0.427	0.477	0.54
	CADMIUM	1.2	U	1.2	U	1.2	U
	CALCIUM	18100	6540	8310	6030	4690	10600
	CHROMIUM	18.4	13.9	14.7	11.3	13.4	14.2
	COBALT	5.31	3.88	4.07	3.2	3.19	3.32
	COPPER	15.6	23.8	22.4	11.8	10.2	17.8
	IRON	16700	13100	14000	12500	13100	14900
	LEAD	12.5	23.2	19.9	9.42	9.76	16.2
	MAGNESIUM	9760	5310	5660	3440	5080	6040
	MANGANESE	499	343	347	200	285	317
	MERCURY	0.05	U	0.05	U	0.05	U
	NICKEL	9	6.51	7.71	6.25	7.79	9.51
	POTASSIUM	6300	4050	4140	2430	3420	4270
	SILVER	0.803	U	0.803	U	0.803	U
	SODIUM	519	350	407	212	211	233
	VANADIUM	29.4	20.4	22.8	17.4	19.8	22.1
	ZINC	52.2	51.5	48.3	29.4	35.5	42.5
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-13A 0.5 ft	ARP-94-14A 0.5 ft	ARP-94-15A 0.5 ft	ARP-94-16A 0.5 ft	ARP-94-17A 0.5 ft	ARP-94-18A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	UJ	UJ	UJ
	2,4-DINITROTOLUENE	2.5	U	2.5	U	U	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	U	U
	2,6-DINITROTOLUENE	2	U	2	U	U	U
	HMX	2	U	2	U	U	U
	NITROGUANIDINE	NA	U	NA	U	U	U
	RDX	1.28	U	1.28	U	U	U
	TETRYL	2.11	U	2.11	U	U	U
METALS	ALUMINUM	17500	8380	5530	10900	18200	17300
	ARSENIC	14.3	7.22	5.64	5.03	5.08	5.57
	BARIUM	176	80.9	63.8	108	150	134
	BERYLLIUM	0.848	0.427	0.427	0.485	0.632	0.655
	CADMIUM	1.2	U	1.2	U	U	U
	CALCIUM	76000	27400	21100	16000	16500	12600
	CHROMIUM	18.2	15.5	7.72	12	18.8	17.9
	COBALT	8.78	3	2.5	3.4	4.55	5.44
	COPPER	40.8	7.54	6.47	10	11.9	12.6
	IRON	23200	11200	7980	13400	16000	17100
	LEAD	48.4	18	9.19	12.7	11.5	10.9
	MAGNESIUM	10200	4580	2870	6990	8790	8460
	MANGANESE	344	149	21.9	310	397	392
	MERCURY	0.096	0.05	0.058	0.05	0.05	0.05
	NICKEL	17.7	7.78	5.01	7.84	9.14	11
	POTASSIUM	4130	2140	1430	3560	5970	5690
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	502	229	192	204	513	359
	VANADIUM	29	18.7	2.51	18.7	27.3	25.5
	ZINC	63.7	29.4	17.5	38.3	45.3	50.1
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-19A 0.5 ft	ARP-94-20A 0.5 ft	ARP-94-21A 0.5 ft	ARP-94-22A 0.5 ft	ARP-94-23A 0.5 ft	ARP-94-24A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	UJ	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	U	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	U	2	2	2	2
	2,6-DINITROTOLUENE	2	U	2	2	2	2
	HMX	2	U	2	2	2	2
	NITROGUANIDINE	NA	U	NA	NA	NA	NA
	RDX	1.28	U	1.28	1.28	1.28	1.28
	TETRYL	2.11	U	2.11	2.11	2.11	2.11
METALS	ALUMINUM	6430	9760	15400	12400	9160	7190
	ARSENIC	5.92	4.05	9.41	5.44	5.1	5.31
	BARIUM	81.9	93	124	119	100	75.2
	BERYLLIUM	0.427	U	0.564	0.608	0.518	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	33100	18400	16600	25300	11600	16600
	CHROMIUM	9.47	11.7	17	13.7	11.9	9.68
	COBALT	2.98	3.3	4.48	5.15	3.15	3.53
	COPPER	9.26	9.17	16.1	14.4	25.9	9.3
	IRON	10200	12000	16600	15700	14900	10500
	LEAD	7.44	9.25	17.2	11.4	34.4	7.44
	MAGNESIUM	2760	5070	6640	6950	5620	3620
	MANGANESE	130	223	326	291	320	197
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	6.27	6.68	9.08	9.63	9.46	6.69
	POTASSIUM	1760	3410	4990	4370	3070	2120
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	103	582	310	201	119	108
	VANADIUM	15.8	18.5	25	20	16.9	14.6
	ZINC	25.4	31.2	51	47.5	60.4	28.3
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-25A 0.5 ft	ARP-94-26A 0.5 ft	ARP-94-27A 0.5 ft	ARP-94-28A 0.5 ft	ARP-94-29A 0.5 ft	ARP-94-29A 0.5 ft (dup)
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	2,6-DINITROTOLUENE	2	2	2	2	2	2
	HMX	2	2	2	2	2	2
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	1.28	1.28	1.28	1.28	1.28	1.28
	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11
METALS	ALUMINUM	8400	13200	8270	11300	12400	12400
	ARSENIC	6.65	6.18	4.82	5.65	5.25	4.99
	BARIUM	97.7	123	75.8	101	104	101
	BERYLLIUM	0.427	0.668	0.427	0.561	0.552	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	28000	16500	6140	19900	14600	14100
	CHROMIUM	10.4	14.4	9.99	14.1	14.6	15.1
	COBALT	3.58	3.28	2.84	3.62	3.6	3.68
	COPPER	12.5	12.7	10.2	11.3	10.5	9.99
	IRON	12700	15400	10700	12700	13400	13200
	LEAD	10.2	8.88	9.08	14.1	8.52	7.44
	MAGNESIUM	5330	7330	4070	4770	5560	5390
	MANGANESE	226	351	233	207	265	255
	MERCURY	0.058	0.05	0.05	0.05	0.05	0.05
	NICKEL	7.49	8.74	7.11	8.48	7.52	7.04
	POTASSIUM	2500	4700	2840	3460	3960	4000
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	124	172	117	199	198	203
	VANADIUM	16.7	20.6	14.4	20.3	20.9	21.2
	ZINC	36.7	45	31.5	37.5	37	35
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-30A 0.5 ft	ARP-94-31A 0.5 ft	ARP-94-32A 0.5 ft	ARP-94-33A 0.5 ft	ARP-94-34A 0.5 ft	ARP-94-35A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	2,6-DINITROTOLUENE	2	2	2	2	2	2
	HMX	2	2	2	2	2	2
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	1.28	1.28	1.28	1.28	1.28	1.28
	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11
METALS	ALUMINUM	8810	13000	9300	11500	5620	5020
	ARSENIC	5.5	11.7	4.77	4.15	6.89	11.1
	BARIUM	97.5	91.1	89.5	95.9	248	73.4
	BERYLLIUM	0.427	0.427	0.427	0.487	0.427	0.427
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	16400	85000	20000	14700	26300	38800
	CHROMIUM	10.9	15.4	12.1	14.5	10.7	8.83
	COBALT	3.61	3.72	3.91	3.41	3.47	2.5
	COPPER	11.5	9.74	8.48	8.61	182	9.46
	IRON	13000	13900	12100	12500	9940	8300
	LEAD	12.7	10.4	7.44	9.24	1600	36.6
	MAGNESIUM	5210	10300	4930	4690	4680	5450
	MANGANESE	243	212	212	226	176	158
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	8.06	11.50	6.88	6.67	5.23	6.08
	POTASSIUM	2690	3270	2900	3550	1890	1420
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	132	2830	155	192	88.1	90.3
	VANADIUM	16.8	25.3	18.8	20.9	2.99	2.99
	ZINC	36.7	33.3	30.9	33.3	162	41.7
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-36A 0.5 ft	ARP-94-37A 0.5 ft	ARP-94-38A 0.5 ft	ARP-94-39A 0.5 ft	ARP-94-40A 0.5 ft	ARP-94-41A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	4.62	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	3	U	2	U
	NITROGUANIDINE	NA	NA	NA	U	NA	U
	RDX	1.28	U	2.31	U	1.28	U
	TETRYL	2.11	U	2.11	U	2.11	U
METALS	ALUMINUM	968	U	7880	7560	6540	6530
	ARSENIC	3.85	J	4.47	J	12.60	J
	BARIUM	55.1	69.2	87.8	86.6	88.5	95.1
	BERYLLIUM	0.427	U	0.427	U	0.427	U
	CADMIUM	1.2	U	2.77	U	1.2	U
	CALCIUM	15800	16600	13300	21600	39200	24100
	CHROMIUM	5.39	7.81	9.72	8.47	8.24	7.67
	COBALT	2.5	U	3.71	3.53	3.35	3.58
	COPPER	143	26.3	30.5	7.95	12.1	7.37
	IRON	7360	8900	11100	10700	9830	9760
	LEAD	20.4	10.1	19.8	8.11	36.9	7.44
	MAGNESIUM	2520	3430	5020	5110	5790	4460
	MANGANESE	21.8	143	255	213	246	184
	MERCURY	0.058	U	0.05	U	0.05	U
	NICKEL	5.35	4.57	5.73	5.74	6.52	5.34
	POTASSIUM	818	1600	2490	2660	2100	2530
	SILVER	0.803	U	0.803	U	0.803	U
	SODIUM	77.4	84.1	107	120	96.6	128
	VANADIUM	2.99	U	2.99	U	2.99	U
	ZINC	95.8	33.3	61.1	29.2	59.9	28.1
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-42A 0.5 ft	ARP-94-43A 0.5 ft	ARP-94-44A 0.5 ft	ARP-94-45A 0.5 ft	ARP-94-46A 0.5 ft	ARP-94-47A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	2	U	2	U
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	1.28	U	1.28	U	1.28	U
	TETRYL	2.11	U	2.11	U	2.11	U
METALS	ALUMINUM	7770	12100	6830	15900	13200	16000
	ARSENIC	4.36	J	4.79	J	7.28	4.73
	BARIUM	93.7	114	101	300	112	123
	BERYLLIUM	0.478	0.536	0.427	0.606	0.522	0.594
	CADMIUM	1.2	1.2	1.2	1.2	1.2	1.2
	CALCIUM	18200	31200	27600	1E+05	23400	14800
	CHROMIUM	8.63	13.1	8.02	13.4	14.6	18.3
	COBALT	3.59	3.85	3.73	3.57	4.77	4.33
	COPPER	9.2	9.26	8.99	11.1	13.2	13.8
	IRON	11700	13300	11500	10900	12600	14600
	LEAD	8.15	7.44	7.44	7.44	16.5	16.3
	MAGNESIUM	5660	6500	4680	51800	5940	6230
	MANGANESE	266	227	215	269	252	303
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.065
	NICKEL	6.39	7.4	6.69	9.5	8.17	8.4
	POTASSIUM	2870	3770	2590	4630	4390	5220
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	102	270	350	9970	382	420
	VANADIUM	2.99	19.6	2.99	25	21.6	26.3
	ZINC	33.4	35.9	30.3	37.8	48.3	44.5
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-48A		ARP-94-49A		ARP-94-49A		ARP-94-50A		ARP-94-51A		ARP-94-52A	
		0.5 ft		0.5 ft		0.5 ft (dup)		0.5 ft		0.5 ft		0.5 ft	
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	U	0.922	U	0.922	U	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	8.15		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	14.4		2	U	2	U	2	U	2	U	2	U
	2,6-DINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	HMX	485		2	U	2	U	2	U	20	U	7.05	
	NITROGUANIDINE	NA		NA		NA		NA		NA		NA	
METALS	RDX	3200		1.28	U	1.28	U	1.28	U	1.28	U	9.29	
	TETRYL	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U
	ALUMINUM	17200		11400		11700		7320		9180		9230	
	ARSENIC	4.29		7.36		10.1		5.75		10.5		4.44	
	BARIUM	2800		96.3		112		67.6		87.6		88	
	BERYLLIUM	0.427	U	0.481		0.536		0.427	U	0.427	U	0.427	U
	CADMIUM	3.6		21700		1.2	U	1.2	U	3.13		2.37	
	CALCIUM	9890		13.3		26200		34200		22200		20200	
	CHROMIUM	44.3		13.3		12.4		10.1		10.9		16.7	
	COBALT	3.89		5.02		6.19		2.63		2.97		3.92	
	COPPER	43.6		11.5		14.3		12.4		14.9		224	
	IRON	13200		13200		14200		8720		11100		12300	
	LEAD	18.6		15.3		21.3		15.6		16.4		25.8	
	MAGNESIUM	4640		4970		6010		4420		4300		4820	
SEMIVOLATILES	MANGANESE	26.7	U	229		286		163		197		208	
	MERCURY	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
	NICKEL	25		9.03		9.32		4.84		7.82		9.34	
	POTASSIUM	3830		3340		3550		1910		2580		3400	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	761		240		191		206		230		671	
	VANADIUM	49.6		19.5		18.6		3.29	U	16.7		16.5	
	ZINC	665		40.4		50.6		40.8		31		157	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	DIETHYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	DIMETHYL PHTHALATE	NA		NA		NA		NA		NA		NA	
	DI-N-BUTYL PHTHALATE	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-53A 0.5 ft	ARP-94-54A 0.5 ft	ARP-94-55A 0.5 ft	ARP-94-56A 0.5 ft	ARP-94-57A 0.5 ft	ARP-94-58A 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	NA
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922 U	0.922 U	0.922 U	0.922 U	0.922 UR	0.922 UR
	2,4-DINITROTOLUENE	2.5 U	3.63 U	2.5 U	2.5 U	2.5 U	2.5 U
	2,4,6-TRINITROTOLUENE	2 U	2 U	2 U	2 U	2 U	2 U
	2,6-DINITROTOLUENE	2 U	2 U	2 U	2 U	2 U	2 U
	HMX	2 U	3.76 U	2 U	2 U	2 U	2 U
	NITROGUANIDINE	NA	NA	NA	NA	NA	NA
	RDX	1.28 U	10.2 U	2.48 U	1.28 U	1.28 U	1.28 U
	TETRYL	2.11 U	2.11 U	2.11 U	2.11 U	2.11 U	2.11 U
METALS	ALUMINUM	9450	8480	9450	8430	7820	15700
	ARSENIC	4.91	5.21	4.59	17.9	4.47	4.8
	BARIUM	80.2	74.9	86.2	96.8	68.5	140
	BERYLLIUM	0.427 U	0.427 U	0.427 U	0.427 U	0.427 U	0.691
	CADMIUM	1.2	6.31	1.2 U	2.11	1.2 U	1.2
	CALCIUM	31200	12100	15600	33700	6950	6020
	CHROMIUM	13	12.8	10.9	11.4	11.1	17.1
	COBALT	2.73	2.6	3.66	2.5	3.33	5.26
	COPPER	22.3	53.2	17.1	65.3	10.4	16.1
	IRON	11300	11200	11800	9550	10900	17000
	LEAD	14.4	18.5	11.8	66.5	11	10.6
	MAGNESIUM	4890	4400	5090	6490	4130	7930
	MANGANESE	205	220	248	223	206	462
	MERCURY	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	NICKEL	6.5	8.23	7.93	5.89	4.8	9.37
	POTASSIUM	2650	2450	3170	2390	2340	5280
	SILVER	0.803 U	0.803 U	0.803 U	0.803 U	0.803 U	0.803 U
	SODIUM	254	137	154	169	131	252
	VANADIUM	17.2	3.29 U	16.8	3.29 U	3.56 UJ	24.60 J
	ZINC	49.5	237	34.5	86.1	28.4	50.7
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-94-59A 0.5 ft	ARP-94-60A 0.5 ft	ARP-95-01A 0.5 ft	ARP-95-02A 0.5 ft	ARP-95-03A 0.5 ft	ARS-95-01 0.5 ft
ANIONS	NITRATE	NA	NA	NA	NA	NA	1
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	UR	0.922	U	0.922	0.922
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	2
	2,6-DINITROTOLUENE	2	U	2	U	2	2
	HMX	2	U	2	U	2	2
	NITROGUANIDINE	NA	NA	NA	U	NA	0.081
	RDX	1.28	U	1.28	U	1.28	1.28
	TETRYL	2.11	U	2.11	U	2.11	2.11
METALS	ALUMINUM	14800	10200	NA	NA	NA	NA
	ARSENIC	2.54	4.38	NA	NA	NA	NA
	BARIUM	132	77.8	NA	NA	NA	NA
	BERYLLIUM	0.624	0.427	NA	NA	NA	NA
	CADMIUM	1.2	U	NA	NA	NA	NA
	CALCIUM	6280	5840	NA	NA	NA	NA
	CHROMIUM	17.4	13.9	NA	NA	NA	NA
	COBALT	6.75	2.5	NA	NA	NA	NA
	COPPER	15.7	13.2	NA	NA	NA	NA
	IRON	15800	12100	NA	NA	NA	NA
	LEAD	18.1	14.4	NA	NA	NA	NA
	MAGNESIUM	6670	4510	NA	NA	NA	NA
	MANGANESE	395	227	NA	NA	NA	NA
	MERCURY	0.05	0.05	NA	U	NA	NA
	NICKEL	9.14	6.12	NA	NA	NA	NA
	POTASSIUM	4620	3200	NA	NA	NA	NA
	SILVER	0.803	0.803	NA	U	NA	NA
	SODIUM	269	183	NA	NA	NA	NA
	VANADIUM	25.6	19.80	NA	J	NA	NA
	ZINC	47.2	34.2	NA	NA	NA	NA
SEMIVOLATILES	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	1.4
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	0.32
	DIETHYL PHTHALATE	NA	NA	NA	NA	NA	0.24
	DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	0.063
	DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	1.3

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARS-95-02 0.5 ft	ARS-95-03 0.5 ft	ARS-95-04 0.5 ft	ARS-95-05 0.5 ft	ARS-95-06 0.5 ft	ARS-95-07 0.5 ft
ANIONS	NITRATE	3.88	1.09	1	5.55	7.45	1.91
	NITRITE	NA	NA	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	2,6-DINITROTOLUENE	2	2	2	2	2	2
	HMX	2	2	2	2	4.74	2
	NITROGUANIDINE	0.045	0.045	0.045	0.209	0.045	0.045
	RDX	1.28	1.28	1.28	2.78	45.3	1.28
	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11
METALS	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	2,4-DINITROTOLUENE	1.4	1.4	1.4	1.4	1.4	1.4
	2,6-DINITROTOLUENE	0.32	0.32	0.32	0.32	0.32	0.32
	DIETHYL PHTHALATE	0.24	0.24	0.24	6.8	0.24	5.8
	DIMETHYL PHTHALATE	0.063	0.063	0.063	8.5	0.16	0.063
	DI-N-BUTYL PHTHALATE	1.3	1.3	1.3	1.3	1.3	1.3

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARS-95-08 0.5 ft	ARS-95-09 0.5 ft	ARS-95-10 0.5 ft	ARS-95-10 0.5 ft (dup)
ANIONS	NITRATE	1	2.89	1.63	1
	NITRITE	NA	NA	NA	NA
EXPLOSIVES	1,3,5-TRINITROBENZENE	0.922	0.922	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2
	2,6-DINITROTOLUENE	2	2	2	2
	HMX	2	2	2	3.15
	NITROGUANIDINE	0.045	0.35	0.148	0.235
	RDX	1.28	1.28	5.63	43.2
	TETRYL	2.11	2.11	2.11	8.03
METALS	ALUMINUM	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA
	CADMIUM	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA
	IRON	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA
	POTASSIUM	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA
SEMIVOLATILES	2,4-DINITROTOLUENE	1.4	1.4	1.4	1.4
	2,6-DINITROTOLUENE	0.32	0.32	0.32	0.32
	DIETHYL PHTHALATE	0.24	0.24	3.1	0.24
	DIMETHYL PHTHALATE	0.063	0.063	0.063	0.063
	DI-N-BUTYL PHTHALATE	1.3	1.3	1.3	1.3

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Surface Soil (continued)

Group	Analytes	ARP-92-101 9 ft	ARP-92-201 7 ft	ARP-92-301 10 ft	ARP-92-401 2.7 ft	ARP-92-402 8.5 ft	ARP-94-01B 3 ft
ANIONS EXPLOSIVES	NITRATE	3.36 U	3.36 U	3.36 U	115	3.36 U	NA
	2,4-DINITROTOLUENE	0.744 U	0.744 U	0.744 U	2.91	0.744 U	2.5 U
	2,4,6-TRINITROTOLUENE	0.931 U	0.931 U	0.931 U	2.86	0.931 U	2 U
	HMX	0.755 U	0.755 U	0.755 U	2.37	0.755 U	2 U
	RDX	0.445 U	0.445 U	0.808 U	34	0.445 U	1.28 U
METALS	TETRYL	1.04 U	1.04 U	1.04 U	18	1.04 U	2.11 U
	ALUMINUM	NA	NA	NA	NA	NA	6430
	ARSENIC	24 U	48 U	24 U	72 U	24 U	2.82
	BARIUM	46	.14	24	110	34	69.9
	BERYLLIUM	0.078 UJ	0.16 UJ	0.078 UJ	0.078 U	0.078 UJ	0.427 U
	CALCIUM	NA	NA	NA	NA	NA	11800
	CHROMIUM	6.22	7.8 U	3.9 U	11	6.32	8.37
	COBALT	NA	NA	NA	NA	NA	2.5 U
	COPPER	3.9 J	3.9 UR	3.14 J	180	5.36 J	5.36 U
	IRON	8100	10000	4700	15000	8900	7310
	LEAD	5.2	2.5	5.6	51	8.1	7.44 U
	MAGNESIUM	NA	NA	NA	NA	NA	2740 U
	MANGANESE	NA	NA	NA	NA	NA	22.6 U
	MERCURY	0.026 U	0.026 U	0.031 U	0.026 U	0.026 U	0.05 U
	NICKEL	2.46 U	4.9 U	2.46 U	2.46 U	2.46 U	3.69 U
SEMIVOLATILES	POTASSIUM	NA	NA	NA	NA	NA	1780 U
	SILVER	0.02	0.015 U	0.024	0.77	0.025	0.803
	SODIUM	NA	NA	NA	NA	NA	332
	VANADIUM	NA	NA	NA	NA	NA	13.7
	ZINC	16.1	16 U	11.5	56	16.7	20.8
	2,4-DINITROTOLUENE	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	NA
	2,6-DINITROTOLUENE	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-01C 5 ft	ARP-94-02B 3 ft	ARP-94-02C 5 ft	ARP-94-03B 3 ft	ARP-94-03C 5 ft	ARP-94-04B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	2.5	U	2.5
	2,4,6-TRINITROTOLUENE	2	2	U	2	U	2
	HMX	2	2	U	2	U	2
METALS	RDX	1.28	1.28	U	1.28	U	1.28
	TETRYL	2.11	2.11	U	2.11	U	2.11
	ALUMINUM	6640	8300	6930	9000	1060	11300
	ARSENIC	3.83	2.94	3.23	3.79	3.18	4.06
	BARIUM	57.7	76.2	67.8	94.3	9.83	103
	BERYLLIUM	0.427	0.427	0.427	0.427	0.427	0.427
	CALCIUM	19100	16900	12700	15700	5320	22400
	CHROMIUM	12.5	11.1	9.1	10.9	6.21	13.1
	COBALT	2.92	3.07	2.5	3.22	2.5	3.17
	COPPER	5.7	6.77	6.87	10.6	5	8.62
	IRON	10100	9760	8420	11300	1450	12200
	LEAD	7.44	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	3560	3450	3230	4750	1780	5050
	MANGANESE	125	119	116	205	22.6	208
SEMIVOLATILES	MERCURY	0.065	0.125	0.056	0.05	0.05	0.05
	NICKEL	5.99	5.03	4.14	6.97	3.45	6.5
	POTASSIUM	1840	2160	1920	2720	184	3360
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	285	313	343	180	352	307
	VANADIUM	21.7	19.1	15.4	18.2	10.9	20.6
	ZINC	23.8	26.5	21.1	34.8	3.89	32.1
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-04C		ARP-94-05B		ARP-94-05C		ARP-94-06B		ARP-94-06C		ARP-94-07B	
		5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	U
	2,4,6-TRINITROTOLUENE	2	2	U	2	U	2	U	2	U	2	U	U
	HMX	2	2	U	2	U	2	U	2	U	2	U	U
METALS	RDX	1.28	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	U
	TETRYL	2.11	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U	U
	ALUMINUM	1060	13100	U	12500	U	15900	U	12100	U	18400	U	U
	ARSENIC	9.14	5.26	U	5.39	U	3.48	U	5.5	U	4.71	U	U
	BARIUM	9.83	134	U	103	U	147	U	110	U	171	U	U
	BERYLLIUM	0.427	0.533	U	0.427	U	0.588	U	0.525	U	0.722	U	U
	CALCIUM	30300	27200	U	15100	U	40900	U	20400	U	38400	U	U
	CHROMIUM	7.79	14.2	U	13.2	U	15.2	U	13.2	U	16.6	U	U
	COBALT	4.42	5.26	U	4.41	U	3.26	U	3.18	U	5.78	U	U
	COPPER	6.32	11.1	U	12.6	U	11.5	U	9.74	U	14.4	U	U
	IRON	13300	16600	U	21000	U	14400	U	14200	U	17600	U	U
	LEAD	10.9	7.44	U	7.44	U	7.44	U	7.44	U	7.44	U	U
	MAGNESIUM	3950	7310	U	6230	U	9750	U	5600	U	11000	U	U
	MANGANESE	22.6	276	U	198	U	331	U	250	U	408	U	U
SEMIVOLATILES	MERCURY	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	U
	NICKEL	6.05	8.32	U	10.4	U	7.99	U	7.75	U	9.31	U	U
	POTASSIUM	184	3890	U	2440	U	5470	U	3500	U	6020	U	U
	SILVER	0.803	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	U
	SODIUM	326	938	U	441	U	1430	U	1140	U	2080	U	U
	VANADIUM	12.3	28.5	U	20.8	U	24.1	U	23.3	U	29	U	U
	ZINC	3.89	45.7	U	43	U	41.9	U	38.5	U	52.6	U	U
	2,4-DINITROTOLUENE	NA	NA	U	NA	U	NA	U	NA	U	NA	U	U
	2,6-DINITROTOLUENE	NA	NA	U	NA	U	NA	U	NA	U	NA	U	U
		NA	NA	U	NA	U	NA	U	NA	U	NA	U	U
		NA	NA	U	NA	U	NA	U	NA	U	NA	U	U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-07C		ARP-94-08B		ARP-94-08C		ARP-94-09B		ARP-94-09B		ARP-94-09C	
		5 ft		3 ft		5 ft		3 ft		3 ft (dup)		5 ft	
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	HMX	2	U	2	U	2	U	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
METALS	TETRYL	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U
	ALUMINUM	10100		16900		11000		13500		17300		10300	
	ARSENIC	7.65		3.87		4.86		5.11		5.03		4.39	
	BARIUM	122		173		102		145		168		119	
	BERYLLIUM	0.427	U	0.731		0.481		0.534		0.665		0.427	U
	CALCIUM	21500		31000		19400		31800		35600		49900	
	CHROMIUM	9.73		15.8		12.4		13		16.9		10	
	COBALT	3.4		5.73		3.89		5.06		5.32		3.6	
	COPPER	12		16.4		9.58		9.43		11.1		11.3	
	IRON	12800		18100		13900		15400		15800		14100	
	LEAD	7.44	U	7.44	U	8.16		7.44	U	8.17		7.44	U
	MAGNESIUM	6960		9510		5300		7050		8180		6450	
	MANGANESE	303		382		235		262		283		245	
	MERCURY	0.05	U	0.071	J	0.05	U	0.053	J	0.062	J	0.05	U
	NICKEL	7.21		11.3		9.81		8.44		9.3		6.71	
	POTASSIUM	3510		6100		3140		3310		4420		2690	
SEMIVOLATILES	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	1300		1220		961		339		496		283	
	VANADIUM	16.6		24.3		22.4		23.6		29.4		17.6	
	ZINC	42.1		64.3		37.7		39.2		46.6		37.4	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-09C 5 ft (dup)	ARP-94-10B 3 ft	ARP-94-10C 5 ft	ARP-94-11B 3 ft	ARP-94-11C 5 ft	ARP-94-12B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	HMX	2	2	2	2	2	2
	RDX	1.28	1.28	1.28	1.28	1.28	1.28
METALS	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11
	ALUMINUM	16000	6730	6680	7880	5720	6860
	ARSENIC	4.7	4.72	4.09	4.41	5.42	4.97
	BARIUM	142	72.8	59.6	76.6	60.2	79.8
	BERYLLIUM	0.615	0.427	0.427	0.427	0.427	0.427
	CALCIUM	29700	20200	31800	17100	14200	19600
	CHROMIUM	16	7.9	9.29	10.7	8.26	9.58
	COBALT	4.92	3.69	5.34	3.42	2.75	2.94
	COPPER	11.3	7.16	7.86	5.27	5.67	5.96
	IRON	15800	10700	13000	10200	9350	9590
SEMIVOLATILES	LEAD	7.44	7.44	7.44	7.44	8.81	7.44
	MAGNESIUM	7340	3330	3520	2710	2800	3390
	MANGANESE	301	187	146	150	142	21.9
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.126
	NICKEL	8.54	5.98	6.68	5.68	5.54	5.44
	POTASSIUM	4270	1520	1310	1950	1460	1710
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	560	96.6	205	215	145	280
	VANADIUM	29.9	14.3	15.3	18.6	13.6	15.4
	ZINC	42.9	27	31.2	23.8	22.6	20.9
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-12C 5 ft	ARP-94-13B 3 ft	ARP-94-13C 5 ft	ARP-94-14B 3 ft	ARP-94-14C 5 ft	ARP-94-15B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U
METALS	TETRYL	2.11	U	2.11	U	2.11	U
	ALUMINUM	6340	U	5640	U	989	U
	ARSENIC	7	5.24	6.14	4.08	5.39	6.44
	BARIUM	55.8	49.7	53.1	8.86	8.86	68.4
	BERYLLIUM	0.427	U	0.427	U	0.427	U
	CALCIUM	18400	30900	18200	6420	276	42000
	CHROMIUM	8.12	6.7	14.3	7.11	6.68	8.78
	COBALT	3.26	2.67	3.97	2.92	2.5	3.51
	COPPER	7.25	6.23	5.72	4.23	3.8	6.57
	IRON	11000	8940	12200	8780	8000	10800
SEMIVOLATILES	LEAD	10.6	15.3	7.44	9.68	7.96	12.6
	MAGNESIUM	4670	6690	4310	1820	922	8880
	MANGANESE	141	143	135	21.9	21.9	163
	MERCURY	0.05	0.05	0.05	0.05	0.05	0.05
	NICKEL	8.04	4.7	5.88	6.04	3.96	7.22
	POTASSIUM	1400	198	198	198	198	1370
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	569	208	860	165	94.7	879
	VANADIUM	14	2.51	26.9	2.51	13.9	14.1
	ZINC	27.2	20.6	26	17.4	3.25	25.7
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-15C		ARP-94-16B		ARP-94-16C		ARP-94-17B		ARP-94-17C		ARP-94-18B	
		5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	U	U	2.5	U	2.5	U	2.5	U	U
	2,4,6-TRINITROTOLUENE	2	2	U	U	2	2	U	2	U	2	U	U
	HMX	2	2	U	U	2	2	U	2	U	2	U	U
	RDX	1.28	1.28	U	U	1.28	1.28	U	1.28	U	1.28	U	U
METALS	TETRYL	2.11	2.11	U	U	2.11	2.11	U	2.11	U	2.11	U	U
	ALUMINUM	989	10000	U	7090	7090	9920	U	7840	U	6970	U	U
	ARSENIC	5.31	6.77	U	7.73	7.73	8.46	U	6	U	4.64	U	U
	BARIUM	57.8	91	U	116	116	115	U	108	U	66.2	U	U
	BERYLLIUM	0.427	0.427	U	0.427	0.427	0.427	U	0.427	U	0.427	U	U
	CALCIUM	19200	46900	U	40500	40500	64000	U	34200	U	14200	U	U
	CHROMIUM	10.1	12.6	U	9.12	9.12	12.7	U	9.76	U	9.84	U	U
	COBALT	3.05	3.41	U	3.44	3.44	3.37	U	2.79	U	2.9	U	U
	COPPER	4.98	6.79	U	8.26	8.26	7.06	U	6.41	U	5.6	U	U
	IRON	9990	12400	U	11700	11700	12700	U	10100	U	8540	U	U
SEMIVOLATILES	LEAD	7.44	9.29	U	12.8	12.8	12	U	7.44	U	7.44	U	U
	MAGNESIUM	3580	8500	U	7350	7350	10500	U	6730	U	2380	U	U
	MANGANESE	135	193	U	179	179	198	U	140	U	121	U	U
	MERCURY	0.05	0.05	U	0.05	0.05	0.075	U	0.094	U	0.05	U	U
	NICKEL	5.44	9.8	U	7.91	7.91	10.2	U	8.39	U	5.06	U	U
	POTASSIUM	198	2140	U	1530	1530	2270	U	1820	U	1700	U	U
	SILVER	0.803	0.803	U	0.803	0.803	0.803	U	0.803	U	0.803	U	U
	SODIUM	1080	2080	U	2080	2080	2190	U	2310	U	364	U	U
	VANADIUM	18.8	21.2	U	14.5	14.5	19.4	U	13.1	U	16.5	U	U
	ZINC	19.5	29	U	27.6	27.6	32.3	U	21.3	U	3.25	U	U
	2,4-DINITROTOLUENE	NA	NA	U	NA	NA	NA	U	NA	U	NA	U	U
	2,6-DINITROTOLUENE	NA	NA	U	NA	NA	NA	U	NA	U	NA	U	U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-18C		ARP-94-19B		ARP-94-19C		ARP-94-20B		ARP-94-20C		ARP-94-21B	
		5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	U	2.5	2.5	U	U	2.5	2.5	U	U
	2,4,6-TRINITROTOLUENE	2	2	U	U	2	2	U	U	2	2	U	U
	HMX	2	2	U	U	2	2	U	U	2	2	U	U
	RDX	1.28	1.28	U	U	1.28	1.28	U	U	1.28	1.28	U	U
METALS	TETRYL	2.11	2.11	U	U	2.11	2.11	U	U	2.11	2.11	U	U
	ALUMINUM	10300	13000			10500	7660			9110	8690		
	ARSENIC	11.1	9.45			9.21	10.1			8.06	3.93		
	BARIUM	105	116			96	84.9			181	81.4		
	BERYLLIUM	0.427	0.427	U	U	0.427	0.427	U	U	0.427	0.427	U	U
	CALCIUM	20800	81000			34300	50800			67000	13800		
	CHROMIUM	12.6	17.3			13	10.3			11.2	11.2		
	COBALT	3.71	3.71			4.09	3.46			3.5	3.49		
	COPPER	7.86	10.4			7.59	6.39			8.41	7.89		
	IRON	14800	14600			12100	11000			12300	10700		
	LEAD	12.4	14.7			10.9	9.89			11.7	8.62		
	MAGNESIUM	4550	10100			6450	5980			10700	4100		
SEMIVOLATILES	MANGANESE	220	254			173	121			178	172		
	MERCURY	0.069	0.065			0.395	0.05	U	U	0.05	0.077		
	NICKEL	12.4	13.7			10.7	9.69			9.34	6.29		
	POTASSIUM	2080	2940			2240	1510			1800	2640		
	SILVER	0.803	0.803	U	U	0.803	0.803	U	U	0.803	0.803	U	U
	SODIUM	1490	1410			1280	3150			2440	1020		
	VANADIUM	23.1	23.5			24.3	18.4			17.4	18		
	ZINC	33.3	48.3			27.9	27.5			28.3	30.2		
	2,4-DINITROTOLUENE	NA	NA			NA	NA			NA	NA		
	2,6-DINITROTOLUENE	NA	NA			NA	NA			NA	NA		

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-21C		ARP-94-22B		ARP-94-22C		ARP-94-23B		ARP-94-23C		ARP-94-24B	
		5 ft		3 ft		5 ft		3 ft		5 ft		3 ft	
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2	2	2	2	2	2	2
	HMX	2	2	2	2	2	2	2	2	2	2	2	2
	RDX	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
METALS	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
	ALUMINUM	989	6210	6210	6210	705	5660	5660	5660	5250	5250	9630	9630
	ARSENIC	4.86	10.6	10.6	10.6	6.06	4.46	4.46	4.46	19.2	19.2	5.41	5.41
	BARIUM	45.8	86.4	86.4	86.4	32.4	49.9	49.9	49.9	148	148	73.8	73.8
	BERYLLIUM	0.427	0.427	0.427	0.427	0.427	0.427	0.427	0.427	0.427	0.427	0.61	0.61
	CALCIUM	6620	15200	15200	15200	17800	11700	11700	11700	45900	45900	26400	26400
	CHROMIUM	7.75	9.57	9.57	9.57	1.18	8.69	8.69	8.69	8.57	8.57	12.8	12.8
	COBALT	2.76	3.84	3.84	3.84	2.5	2.78	2.78	2.78	3.85	3.85	4.35	4.35
	COPPER	5.77	9.8	9.8	9.8	3.58	6.25	6.25	6.25	6.72	6.72	12.2	12.2
	IRON	9080	11800	11800	11800	5820	8760	8760	8760	12800	12800	16900	16900
	LEAD	7.44	8.61	8.61	8.61	7.44	7.44	7.44	7.44	8.95	8.95	13.6	13.6
	MAGNESIUM	2390	3560	3560	3560	1700	3010	3010	3010	6340	6340	7680	7680
	MANGANESE	119	132	132	132	99.9	108	108	108	262	262	163	163
	MERCURY	0.05	0.05	0.05	0.05	0.077	0.05	0.05	0.05	0.085	0.085	0.05	0.05
	NICKEL	5.23	10.2	10.2	10.2	3.12	4.53	4.53	4.53	10.9	10.9	14.1	14.1
	POTASSIUM	1120	1280	1280	1280	193	1410	1410	1410	193	193	1690	1690
SEMIVOLATILES	SILVER	0.803	0.803	0.803	0.803	0.803	0.803	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	697	1580	1580	1580	432	731	731	731	1280	1280	2500	2500
	VANADIUM	14.8	18.8	18.8	18.8	8.89	15	15	15	17.7	17.7	23.6	23.6
	ZINC	20.7	25.5	25.5	25.5	2.72	19	19	19	28.6	28.6	36.2	36.2
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-24C		ARP-94-25B		ARP-94-25C		ARP-94-26B		ARP-94-26C		ARP-94-27B	
		5 ft		3 ft		5 ft		3 ft		5 ft		3 ft	
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	UR	2.5	UR	2.5	UR	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	UR	2	UR	2	UR	2	U	2	U	2	U
	HMX	2	UR	2	UR	2	UR	2	U	2	U	2	U
METALS	RDX	1.28	UR	1.28	UR	1.28	UR	1.28	U	1.28	U	1.28	U
	TETRYL	2.11	UR	2.11	UR	2.11	UR	2.11	U	2.11	U	2.11	U
	ALUMINUM	6330		7000		8850		4360		705		4400	
	ARSENIC	9.97		4.66		4.68		9.64		6.59		3.98	
	BARIUM	83.9		78.1		95.5		81.7		63.3		64.1	
	BERYLLIUM	0.427	U	0.427	U	0.503		0.427	U	0.427	U	0.427	U
	CALCIUM	43400		11400		27400		57000		27900		18100	
	CHROMIUM	9.81		8.89		10.7		6.66		7.89		5.99	
	COBALT	4.09		2.88		4.1		3.16		2.95		2.5	U
	COPPER	10.1		13		12		6.29		4.59		5.12	
	IRON	14800		11000		12900		10700		8110		7950	U
	LEAD	13		10.5		11.7		11.1		7.44	U	7.44	U
	MAGNESIUM	7770		4510		5250		10600		3120		2660	
	MANGANESE	135		245		223		183		89		146	
	MERCURY	0.05	U	0.05	U	0.05	U	0.064		0.05	U	0.05	U
	NICKEL	8.78	J	6.6	J	8.55	J	8.33	J	4.31	J	4.41	J
SEMIVOLATILES	POTASSIUM	1150		2540		2720		193	U	193	U	1440	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	1990		138		129		1390		1010		103	
	VANADIUM	19.6		13.6		17.1		13.7		19.7		9.53	
	ZINC	34		36.8		36.8		27.1		16.7		20.6	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-27C 5 ft	ARP-94-28B 3 ft	ARP-94-28C 5 ft	ARP-94-29B 3 ft	ARP-94-29B 3 ft (dup)	ARP-94-29C 5 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	U	U	U	U
	2,4,6-TRINITROTOLUENE	2	U	U	U	U	U
	HMX	2	U	U	U	U	U
	RDX	1.28	U	U	U	U	U
METALS	TETRYL	2.11	U	U	U	U	U
	ALUMINUM	5160	9610	10800	8980	9610	3770
	ARSENIC	3.87	5.07	4.27	4.28	4.08	5.06
	BARIUM	51.9	89.1	98.6	90.9	87.4	36.4
	BERYLLIUM	0.427	U	0.427	U	U	U
	CALCIUM	11000	7860	17400	25900	24500	11200
	CHROMIUM	8.77	12.7	13.4	10.9	11.6	1.18
	COBALT	3.11	3.7	3.6	3.84	3.45	2.5
	COPPER	5.59	14.8	8.43	8.01	7.45	4.6
	IRON	8850	12600	12300	11800	11300	6150
	LEAD	7.44	14.1	8.02	7.44	7.44	7.44
	MAGNESIUM	2210	4470	4750	5050	4630	2410
SEMIVOLATILES	MANGANESE	124	260	208	207	179	15.2
	MERCURY	0.09	0.05	0.072	0.05	0.05	0.05
	NICKEL	4.53	8.02	7.2	8.7	8.04	3.76
	POTASSIUM	1250	2920	3300	2810	2890	1030
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	142	172	235	316	349	292
	VANADIUM	14.6	18.2	20.8	16.9	18	9.58
	ZINC	20.1	37.1	35.3	30.5	27	2.72
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-29C 5 ft (dup)	ARP-94-30B 3 ft	ARP-94-30C 5 ft	ARP-94-31B 3 ft	ARP-94-31C 5 ft	ARP-94-32B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	2,4,6-TRINITROTOLUENE	2 U	2 U	2 U	2 U	2 U	2 U
	HMX	2 U	2 U	2 U	2 U	2 U	2 U
METALS	RDX	1.28 U	1.28 U	1.28 U	1.28 U	1.28 U	1.28 U
	TETRYL	2.11 U	2.11 U	2.11 U	2.11 U	2.11 U	2.11 U
	ALUMINUM	5730	10500	9920	4890	705 U	6830
	ARSENIC	4.79	4.52	10.5	8.11	4.27	3.45 J
	BARIUM	45.5	84.3	113	128	5.7 U	72.8
	BERYLLIUM	0.427 U	0.427 U	0.427 U	0.427 U	0.427 U	0.427 U
	CALCIUM	10700	8660	60000	34600	24300	14900
	CHROMIUM	8.19	14.7	12.6	7.59	9.94	9.91
	COBALT	2.5 U	3.94	3.72	4.23	2.5 U	2.72
	COPPER	7.36	8.3	6.33	7.73	4.74	4.92
	IRON	9060	13300	12000	11800	8850	9650
	LEAD	7.44 U	7.44 U	11 U	10.7	7.44 U	7.44 U
SEMIVOLATILES	MAGNESIUM	2970	4170	6780	6790	3770	2830
	MANGANESE	88.3	182	112	181	96.4	160
	MERCURY	0.05 U	0.063	0.058	0.05 U	0.05 U	0.05 U
	NICKEL	3.87 J	8.97 J	8.04 J	8.8 J	4.74 J	5.39
	POTASSIUM	1420	2950	2350	972 U	193 U	1780
	SILVER	0.803 U	0.803 U	0.803 U	0.803 U	0.803 U	0.803 U
	SODIUM	379	462	1250	2840	682	142
	VANADIUM	15.1	21.3	18.7	11.3	15.5	16.4
	ZINC	20.1	31.7	27.5	28.2	16.2	25.4
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-32C 5 ft	ARP-94-33B 3 ft	ARP-94-33C 5 ft	ARP-94-34B 3 ft	ARP-94-34C 5 ft	ARP-94-35B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	2
	HMX	2	U	2	U	2	2
METALS	RDX	1.28	U	1.28	U	1.28	1.28
	TETRYL	2.11	U	2.11	U	2.11	2.11
	ALUMINUM	4950	8370	5010	968	7150	5050
	ARSENIC	2.93	J	6.33	J	5.78	4.63
	BARIUM	9.56	72.8	9.56	61.1	9.56	65.5
	BERYLLIUM	0.427	U	0.427	U	0.427	0.427
	CALCIUM	4740	19000	23000	11700	7570	21900
	CHROMIUM	10.5	12.2	10.5	8.22	13.8	6.99
	COBALT	2.85	3.94	3.31	3.21	4.12	2.79
	COPPER	4.51	6.55	4.79	5.45	5.04	4.47
	IRON	9120	12100	10400	9300	12100	8710
	LEAD	7.44	11.1	7.44	7.44	8.95	7.44
SEMIVOLATILES	MAGNESIUM	1720	5270	4580	2470	2790	3200
	MANGANESE	149	150	118	133	135	132
	MERCURY	0.05	0.07	0.05	0.05	0.063	0.05
	NICKEL	4.32	8.48	5.76	4.84	6.39	4.06
	POTASSIUM	1060	2040	1150	1280	1460	1410
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	84.4	878	789	151	299	109
	VANADIUM	2.99	19.3	19.1	2.99	23.6	2.99
	ZINC	19.9	25	20.7	20.3	23.6	20.2
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-35C 5 ft	ARP-94-36B 3 ft	ARP-94-36C 5 ft	ARP-94-37B 3 ft	ARP-94-37C 5 ft	ARP-94-38B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	2,4,6-TRINITROTOLUENE	2 U	2 U	2 U	2 U	2 U	2 U
	HMX	2 U	2 U	2 U	2 U	2 U	2 U
	RDX	1.28 U	1.28 U	1.28 U	1.28 U	1.28 U	1.28 U
METALS	TETRYL	2.11 U	2.11 U	2.11 U	2.11 U	2.11 U	2.11 U
	ALUMINUM	5720	968 U	968 U	6060 J	968 U	968 U
	ARSENIC	3.89 J	5.45 J	10 J	12.3 J	11.2 J	7.3 J
	BARIUM	71.1	61.3	56.4	91.7	56.9	61
	BERYLLIUM	0.427 U	0.427 U	0.427 U	0.427 U	0.427 U	0.427 U
	CALCIUM	13800	28300	26600	21700	27300	25200
	CHROMIUM	8.59	6.84	6.85	8.64	6.16	4.72
	COBALT	3.02	3.82	3.44	3.95	4.03	3.11
	COPPER	4.71	6.14	11.8	6.3	6.62	4.53
	IRON	9520	10200	10500	11700	10400	7230
SEMIVOLATILES	LEAD	7.44 U	8.57	11.4	7.44 U	10.8	7.44 U
	MAGNESIUM	2820	6100	4850	5440	4700	4240
	MANGANESE	131	163	109	159	112	132
	MERCURY	0.078	0.061 J	0.168 J	0.05 U	0.085 J	0.059 J
	NICKEL	3.72	7.94	8.65	8.14	7.78	3.9
	POTASSIUM	1530	785	155 U	1380 U	155 U	155 U
	SILVER	0.803 U	0.803 U	0.803 U	0.803 U	0.803 U	0.803 U
	SODIUM	158	484	557	133	67.3	317
	VANADIUM	2.99 U	2.99 U	2.99 U	18.5	2.99 U	2.99 U
	ZINC	21.9	24	29.5	22.9	25.1	3.53 U
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-38C 5 ft	ARP-94-39B 3 ft	ARP-94-39C 5 ft	ARP-94-40B 3 ft	ARP-94-40C 5 ft	ARP-94-41B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U
	HMX	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U
METALS	TETRYL	2.11	U	2.11	U	2.11	U
	ALUMINUM	968	U	968	U	968	U
	ARSENIC	9.69	J	5.06	J	3.91	J
	BARIUM	77.5	U	9.56	U	50.7	U
	BERYLLIUM	0.427	U	0.427	U	0.427	U
	CALCIUM	37300	13200	18900	8640	18400	20300
	CHROMIUM	7.05	5.6	2.67	5.75	5.26	4.81
	COBALT	3.87	2.5	2.5	2.5	2.5	2.5
	COPPER	6.07	3.56	4.75	4.53	4.53	7.28
	IRON	9680	1410	1410	1410	8440	8370
	LEAD	7.98	7.44	7.44	7.44	7.44	7.44
	MAGNESIUM	5530	1850	1730	2340	2600	3370
	MANGANESE	151	21.8	111	21.8	21.8	114
	MERCURY	0.061	0.05	0.084	0.05	0.05	0.05
	NICKEL	6.21	2.74	3.79	3.26	4.19	3.95
SEMIVOLATILES	POTASSIUM	155	155	155	974	892	818
	SILVER	0.803	0.803	0.803	0.803	0.803	0.803
	SODIUM	153	279	298	231	387	643
	VANADIUM	2.99	U	2.99	U	2.99	U
	ZINC	23.1	3.53	3.53	3.53	19.1	18.9
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-41C		ARP-94-42B		ARP-94-42C		ARP-94-43B		ARP-94-43C		ARP-94-44B	
		5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	HMX	2	U	2	U	2	U	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
METALS	TETRYL	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U
	ALUMINUM	968	U	968	U	968	U	968	U	968	U	11300	U
	ARSENIC	6.07	J	5.48	J	4.75	J	10.6	J	2.66	J	5.71	J
	BARIUM	9.56	U	9.56	U	9.56	U	9.56	U	9.56	U	143	U
	BERYLLIUM	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.628	U
	CALCIUM	6830		12500		18800		28700		28200		44400	
	CHROMIUM	6.45		4.27		4.01		3		3.07		11.6	
	COBALT	2.85		2.5	U	2.9		2.5	U	2.5	U	6.03	
	COPPER	5.99		4.27		3.86		3.83		4.24		9.51	
	IRON	9080		1410	U	1410	U	7730		7520		15400	
SEMIVOLATILES	LEAD	7.44	U	7.44	U	7.44	U	7.44	U	7.44	U	15	
	MAGNESIUM	2050		1660		2000		3110		3650		6840	
	MANGANESE	21.8	U	21.8	U	21.8	U	21.8	U	21.8	U	244	
	MERCURY	0.05	U	0.05	U	0.059	J	0.05	U	0.054	J	0.058	J
	NICKEL	4.41		2.74	U	5.59		4.95		4.07		10.7	
	POTASSIUM	985		155	U	155	U	155	U	155	U	3430	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	730		95.7		116		156		218		1790	
	VANADIUM	2.99	U	2.99	U	2.99	U	2.99	U	2.99	U	19.1	
	ZINC	19.3		3.53	U	3.53	U	3.53	U	3.53	U	37.9	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA		NA	

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-44C		ARP-94-45B		ARP-94-45C		ARP-94-46B		ARP-94-46C		ARP-94-47B	
		5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft	5 ft	3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	U	U	2.5	U	U	U	2.5	U	U
	2,4,6-TRINITROTOLUENE	2	2	U	U	U	2	U	U	U	2	U	U
	HMX	2	2	U	U	U	2	U	U	U	2	U	U
	RDX	1.28	1.28	U	U	U	1.28	U	U	U	1.28	U	U
METALS	TETRYL	2.11	2.11	U	U	U	2.11	U	U	U	2.11	U	U
	ALUMINUM	7810	8970	U	U	U	1060	U	U	U	1060	U	U
	ARSENIC	4.45	10.4	J	U	U	19.5	U	U	U	3.03	U	U
	BARIUM	79.6	92.3	U	U	U	10	U	U	U	51	U	U
	BERYLLIUM	0.427	0.427	U	U	U	0.427	U	U	U	0.427	U	U
	CALCIUM	21900	27900	U	U	U	12000	U	U	U	32400	U	U
	CHROMIUM	9.7	9.87	U	U	U	1.63	U	U	U	1.63	U	U
	COBALT	3.63	3.62	U	U	U	7.11	U	U	U	3.07	U	U
	COPPER	8.01	7.45	U	U	U	12.6	U	U	U	4.32	U	U
	IRON	12600	12700	U	U	U	22700	U	U	U	1630	U	U
SEMIVOLATILES	LEAD	7.44	7.44	U	U	U	15.1	U	U	U	7.44	U	U
	MAGNESIUM	4300	5160	U	U	U	5600	U	U	U	4290	U	U
	MANGANESE	187	173	U	U	U	26.7	U	U	U	26.7	U	U
	MERCURY	0.05	0.05	U	U	U	0.05	U	U	U	0.06	U	U
	NICKEL	7.52	7.88	U	U	U	9.75	U	U	U	4.43	U	U
	POTASSIUM	2310	2850	U	U	U	269	U	U	U	269	U	U
	SILVER	0.803	0.803	U	U	U	0.803	U	U	U	0.803	U	U
	SODIUM	680	413	U	U	U	312	U	U	U	280	U	U
	VANADIUM	15.8	16.5	U	U	U	3.29	U	U	U	3.29	U	U
	ZINC	25.4	32.7	U	U	U	24.1	U	U	U	4.59	U	U
	2,4-DINITROTOLUENE	NA	NA	U	U	U	NA	U	U	U	NA	U	U
	2,6-DINITROTOLUENE	NA	NA	U	U	U	NA	U	U	U	NA	U	U
		NA	NA	U	U	U	NA	U	U	U	NA	U	U
		NA	NA	U	U	U	NA	U	U	U	NA	U	U
		NA	NA	U	U	U	NA	U	U	U	NA	U	U
		NA	NA	U	U	U	NA	U	U	U	NA	U	U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-47C		ARP-94-48B		ARP-94-48C		ARP-94-49B		ARP-94-49B		ARP-94-49C	
		5 ft		3 ft		5 ft		3 ft		3 ft (dup)		5 ft	
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	HMX	2	U	2	U	2	U	2	U	2	U	2	U
	RDX	1.28	U	1.69	U	1.28	U	1.28	U	1.28	U	1.28	U
METALS	TETRYL	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U
	ALUMINUM	1060	U	5320	U	1060	U	1060	U	1060	U	1060	U
	ARSENIC	4.25	U	3.75	U	3.65	U	15.9	U	8.8	U	6.74	U
	BARIUM	10	U	10	U	10	U	10	U	10	U	10	U
	BERYLLIUM	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U
	CALCIUM	13800	U	7820	U	12300	U	34700	U	28300	U	45300	U
	CHROMIUM	8.46	U	8.71	U	1.63	U	1.63	U	8.89	U	1.63	U
	COBALT	3.57	U	2.93	U	2.81	U	4.05	U	4.06	U	2.5	U
	COPPER	4.7	U	4.85	U	4.85	U	5.26	U	6.97	U	2.84	U
	IRON	1630	U	1630	U	1630	U	13500	U	15300	U	1630	U
SEMIVOLATILES	LEAD	7.44	U	7.44	U	7.44	U	12.4	U	9.48	U	7.44	U
	MAGNESIUM	2510	U	2080	U	2130	U	7340	U	3810	U	4470	U
	MANGANESE	26.7	U	26.7	U	26.7	U	26.7	U	26.7	U	26.7	U
	MERCURY	0.058	J	0.057	J	0.05	U	0.05	U	0.05	U	0.05	U
	NICKEL	3.68	U	5.21	U	3.67	U	6.06	U	7.59	U	2.74	U
	POTASSIUM	1380	U	1490	U	269	U	269	U	269	U	269	U
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	392	U	375	U	469	U	116	U	159	U	99.6	U
	VANADIUM	17	U	3.29	U	3.29	U	3.29	U	3.29	U	3.29	U
	ZINC	4.59	U	4.59	U	4.59	U	4.59	U	4.59	U	4.59	U
	2,4-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	2,6-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	2,4-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	2,6-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
	2,4-DINITROTOLUENE	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-49C		ARP-94-50B		ARP-94-50C		ARP-94-51B		ARP-94-51C		ARP-94-52B	
		5 ft	(dup)	3 ft	3 ft	5 ft	5 ft	3 ft	3 ft	5 ft	5 ft	3 ft	3 ft
ANIONS EXPLOSIVES	NITRATE	NA		NA	2.5	U	NA	2.5	NA			NA	
	2,4-DINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	2,4,6-TRINITROTOLUENE	2	U	2	U	2	U	2	U	2	U	2	U
	HMX	2	U	2	U	2	U	2	U	2	U	2	U
	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U	1.72	U
METALS	TETRYL	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U
	ALUMINUM	1060	U	1060	U	1060	U	1060	U	1060	U	9910	
	ARSENIC	3.72	U	2.5	U	2.5	U	3.75	U	8.09	U	3.79	
	BARIUM	10	U	10	U	10	U	10	U	10	U	88.1	
	BERYLLIUM	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U	0.427	U
	CALCIUM	36300		36000		47800		34200		46100		17400	
	CHROMIUM	1.63	U	1.63	U	1.63	U	1.63	U	1.63	U	11.4	
	COBALT	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	3.76	
	COPPER	3.37	U	4.31	U	3.59	U	16.5	U	3.7	U	9.18	
	IRON	1630	U	1630	U	1630	U	9020	U	1630	U	11600	
	LEAD	7.44	U	7.44	U	7.44	U	7.44	U	7.44	U	7.44	U
	MAGNESIUM	3690	U	1700	U	2840	U	4160	U	2730	U	4700	
	MANGANESE	26.7	U	26.7	U	26.7	U	26.7	U	26.7	U	197	
	MERCURY	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.052	J
	NICKEL	3.39	U	4.09	U	3.93	U	6.94	U	4.79	U	7.17	
	POTASSIUM	269	U	269	U	269	U	269	U	269	U	3200	
	SILVER	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U	0.803	U
	SODIUM	131		217		158		75.3		96.1		544	
	VANADIUM	3.29	U	3.29	U	3.29	U	3.29	U	3.29	U	18.5	
	ZINC	4.59	U	4.59	U	4.59	U	4.59	U	4.59	U	33.2	
SEMIVOLATILES	2,4-DINITROTOLUENE	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,6-DINITROTOLUENE	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-52C 5 ft	ARP-94-53B 3 ft	ARP-94-53C 5 ft	ARP-94-54B 3 ft	ARP-94-54C 5 ft	ARP-94-55B 3 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	2.5	2.5	U	2.5	U	2.5
	2,4,6-TRINITROTOLUENE	2	2	U	2	U	2
	HMX	2	2	U	2	U	2
	RDX	1.28	1.28	U	1.28	U	1.28
METALS	TETRYL	2.11	2.11	U	2.11	U	2.11
	ALUMINUM	7260	1060	U	5740	U	7250
	ARSENIC	3.93	3.61	U	5.9	U	3.3
	BARIUM	68.6	10	U	60.8	U	73.2
	BERYLLIUM	0.427	0.427	U	0.427	U	0.427
	CALCIUM	13100	8720	U	34600	U	17400
	CHROMIUM	9.53	1.63	U	1.63	U	8.87
	COBALT	3.35	2.5	U	4.37	U	2.81
	COPPER	9.7	5.73	U	6.58	U	5.75
	IRON	9940	1630	U	12500	U	9610
SEMIVOLATILES	LEAD	8.2	7.44	U	7.44	U	7.44
	MAGNESIUM	3580	1850	U	4650	U	3160
	MANGANESE	150	26.7	U	138	U	149
	MERCURY	0.05	0.05	U	0.05	U	0.05
	NICKEL	5.89	4.3	U	9.06	U	5.11
	POTASSIUM	2160	269	U	1530	U	2000
	SILVER	0.803	0.803	U	0.803	U	0.803
	SODIUM	621	168	U	251	U	175
	VANADIUM	18.5	3.29	U	3.29	U	3.29
	ZINC	24.2	4.59	U	27	U	25.4
	2,4-DINITROTOLUENE	NA	NA	U	NA	U	NA
	2,6-DINITROTOLUENE	NA	NA	U	NA	U	NA

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-55C			ARP-94-56B			ARP-94-56C			ARP-94-57B			ARP-94-57C			ARP-94-58B		
		5 ft			3 ft			5 ft			3 ft			5 ft			3 ft		
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	2.5	U	NA	2.5	U	NA	2.5	U	NA	2.5	U	NA	2.5	U
	2,4-DINITROTOLUENE	NA	NA	NA	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U
	2,4,6-TRINITROTOLUENE	NA	NA	NA	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U
	HMX	NA	NA	NA	NA	3.03	U	2.09	2.11	U	1.28	1.28	U	1.28	1.28	U	1.28	1.28	U
	RDX	NA	NA	NA	2.11	2.11	U	2.11	2.11	U	2.11	2.11	U	2.11	2.11	U	2.11	2.11	U
METALS	TETRYL	7060	1060	1060	1060	1060	U	1060	1060	U	6680	6680	U	5500	5500	U	7350	7350	U
	ALUMINUM	4.73	3.46	3.46	3.46	3.46	U	4.4	4.4	U	3.72	3.72	U	3.48	3.48	U	4.99	4.99	U
	ARSENIC	71.4	10	10	10	10	U	10	10	U	70.2	70.2	U	54.7	54.7	U	84.4	84.4	U
	BERYLLIUM	0.427	0.427	0.427	0.427	0.427	U	0.427	0.427	U	0.427	0.427	U	0.427	0.427	U	0.427	0.427	U
	CALCIUM	16900	18000	18000	18000	18000	U	18300	18300	U	17900	17900	U	7480	7480	U	33100	33100	U
	CHROMIUM	9.04	1.63	1.63	1.63	1.63	U	10.3	10.3	U	7.83	7.83	U	9.89	9.89	U	8.47	8.47	U
	COBALT	2.93	2.94	2.94	2.94	2.94	U	2.8	2.8	U	2.78	2.78	U	3.38	3.38	U	2.5	2.5	U
	COPPER	6.14	4.86	4.86	4.86	4.86	U	4.38	4.38	U	4.56	4.56	U	6.64	6.64	U	6.91	6.91	U
	IRON	9760	1630	1630	1630	1630	U	9930	9930	U	8940	8940	U	9870	9870	U	9880	9880	U
	LEAD	7.44	7.44	7.44	7.44	7.44	U	7.44	7.44	U	7.44	7.44	U	7.44	7.44	U	7.44	7.44	U
	MAGNESIUM	3500	2790	2790	2790	2790	U	2500	2500	U	3230	3230	U	2550	2550	U	4280	4280	U
	MANGANESE	149	26.7	26.7	26.7	26.7	U	26.7	26.7	U	151	151	U	128	128	U	159	159	U
	MERCURY	0.05	0.05	0.05	0.05	0.05	U	0.082	0.082	U	0.05	0.05	U	0.05	0.05	U	0.05	0.05	U
SEMIVOLATILES	NICKEL	6.07	4.62	4.62	4.62	4.62	U	5.57	5.57	U	4.63	4.63	U	5.29	5.29	U	4.94	4.94	U
	POTASSIUM	1970	269	269	269	269	U	269	269	U	1790	1790	U	302	302	U	1990	1990	U
	SILVER	0.803	0.803	0.803	0.803	0.803	U	0.803	0.803	U	0.803	0.803	U	0.803	0.803	U	0.803	0.803	U
	SODIUM	178	179	179	179	179	U	84.1	84.1	U	159	159	U	241	241	U	175	175	U
	VANADIUM	3.29	3.29	3.29	3.29	3.29	U	20.3	20.3	U	3.56	3.56	U	22.6	22.6	U	3.56	3.56	U
	ZINC	25.2	4.59	4.59	4.59	4.59	U	4.59	4.59	U	22.9	22.9	U	21.2	21.2	U	26.7	26.7	U
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U
		NA	NA	NA	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U
		NA	NA	NA	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U
		NA	NA	NA	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA	U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-94-58C 5 ft	ARP-94-59B 3 ft	ARP-94-59C 5 ft	ARP-94-60B 3 ft	ARP-94-60C 5 ft	ARB-95-01B 2 ft
ANIONS EXPLOSIVES	NITRATE	NA	NA	NA	NA	NA	1
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2.5	2.5
	2,4,6-TRINITROTOLUENE	2	2	2	2	2	2
	HMX	2	2	2	2	2	2
	RDX	1.28	1.28	1.28	1.28	1.28	1.28
METALS	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11
	ALUMINUM	1100	6230	1100	9930	1100	NA
	ARSENIC	29.3	4.68	4.87	13.3	4.38	NA
	BARIUM	10.1	62.1	10.1	144	10.1	NA
	BERYLLIUM	0.427	0.427	0.427	0.427	0.427	NA
	CALCIUM	52700	12100	8980	93000	17300	NA
	CHROMIUM	6.78	10.2	1.16	11.5	5.96	NA
	COBALT	3.36	3.35	2.5	5.98	2.5	NA
	COPPER	5.48	5.4	2.84	7.96	3.66	NA
	IRON	9920	9310	1490	14100	1490	NA
	LEAD	7.44	7.44	7.44	7.44	7.44	NA
	MAGNESIUM	5770	2100	1810	8790	4700	NA
	MANGANESE	25.4	25.4	25.4	206	25.4	NA
	MERCURY	0.072	0.05	0.106	0.074	0.05	NA
	NICKEL	6.12	4.18	2.74	10.8	3.4	NA
SEMIVOLATILES	POTASSIUM	302	1560	302	2450	302	NA
	SILVER	0.803	0.803	0.803	0.803	0.803	NA
	SODIUM	200	194	247	2450	725	NA
	VANADIUM	3.56	18.3	3.56	18.6	3.56	NA
	ZINC	20.1	3.92	3.92	28.7	3.92	NA
	2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	1.4
	2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	0.32
							U
							U
							U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARB-95-02B 2 ft	ARB-95-03B 2 ft	ARB-95-04B 1 ft	ARB-95-05B 2 ft	ARB-95-01B 3 ft	ARB-95-01C 5 ft
ANIONS EXPLOSIVES	NITRATE	1	1	1	1	0.922	0.922
	2,4-DINITROTOLUENE	2.5	2.5	2.5	2.5	2	2
	2,4,6-TRINITROTOLUENE	2	2	2	2	2.5	2.5
	HMX	2	2	2	2	NA	NA
	RDX	1.28	1.28	1.28	1.28	1.28	1.28
METALS	TETRYL	2.11	2.11	2.11	2.11	2.11	2.11
	ALUMINUM	NA	NA	NA	NA	NA	NA
	ARSENIC	NA	NA	NA	NA	NA	NA
	BARIUM	NA	NA	NA	NA	NA	NA
	BERYLLIUM	NA	NA	NA	NA	NA	NA
	CALCIUM	NA	NA	NA	NA	NA	NA
	CHROMIUM	NA	NA	NA	NA	NA	NA
	COBALT	NA	NA	NA	NA	NA	NA
	COPPER	NA	NA	NA	NA	NA	NA
	IRON	NA	NA	NA	NA	NA	NA
	LEAD	NA	NA	NA	NA	NA	NA
	MAGNESIUM	NA	NA	NA	NA	NA	NA
	MANGANESE	NA	NA	NA	NA	NA	NA
	MERCURY	NA	NA	NA	NA	NA	NA
	NICKEL	NA	NA	NA	NA	NA	NA
SEMIVOLATILES	POTASSIUM	NA	NA	NA	NA	NA	NA
	SILVER	NA	NA	NA	NA	NA	NA
	SODIUM	NA	NA	NA	NA	NA	NA
	VANADIUM	NA	NA	NA	NA	NA	NA
	ZINC	NA	NA	NA	NA	NA	NA
	2,4-DINITROTOLUENE	1.4	1.4	1.4	1.4	1.4	1.4
	2,6-DINITROTOLUENE	0.32	0.32	0.32	0.32	0.32	0.32
		U	U	U	U	U	U

Summary of Analytes Detected in Soil for the AED Test Range (SWMU 40)

Subsurface Soil (continued)

Group	Analytes	ARP-95-02B		ARP-95-02C		ARP-95-03B		ARP-95-03C		ARP-95-03C	
		3 ft		5 ft		3 ft		5 ft		5 ft (dup)	
ANIONS EXPLOSIVES	NITRATE	0.922	U	0.922	U	0.922	U	0.922	U	0.922	U
	2,4-DINITROTOLUENE	2	U	2	U	2	U	2	U	2	U
	2,4,6-TRINITROTOLUENE	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
	HMX	NA		NA		NA		NA		NA	
METALS	RDX	1.28	U	1.28	U	1.28	U	1.28	U	1.28	U
	TETRYL	2.11	U	2.11	U	2.11	U	2.11	U	2.11	U
	ALUMINUM	NA		NA		NA		NA		NA	
	ARSENIC	NA		NA		NA		NA		NA	
	BARIUM	NA		NA		NA		NA		NA	
	BERYLLIUM	NA		NA		NA		NA		NA	
	CALCIUM	NA		NA		NA		NA		NA	
	CHROMIUM	NA		NA		NA		NA		NA	
	COBALT	NA		NA		NA		NA		NA	
	COPPER	NA		NA		NA		NA		NA	
SEMIVOLATILES	IRON	NA		NA		NA		NA		NA	
	LEAD	NA		NA		NA		NA		NA	
	MAGNESIUM	NA		NA		NA		NA		NA	
	MANGANESE	NA		NA		NA		NA		NA	
	MERCURY	NA		NA		NA		NA		NA	
	NICKEL	NA		NA		NA		NA		NA	
	POTASSIUM	NA		NA		NA		NA		NA	
	SILVER	NA		NA		NA		NA		NA	
	SODIUM	NA		NA		NA		NA		NA	
	VANADIUM	NA		NA		NA		NA		NA	
	ZINC	NA		NA		NA		NA		NA	
	2,4-DINITROTOLUENE	NA		NA		NA		NA		NA	
	2,6-DINITROTOLUENE	NA		NA		NA		NA		NA	

All values are in µg/g (equal to ppm)

NA = Not analyzed

U = Not detected; value is the Certified Reporting Limit.

Dup = Duplicate analysis

J = Value is estimated

R = Data rejected